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ABSTRACT

This document contains the proceedings of a conference on improving the academic skills of urban students. Titles and authors of the twelve included papers are: (1) "Academic Skills and the SAT," George H. Hanford; (2) "New York City Promotional Gates Program: Implications for Instruction of Academic Skills," Charlotte Frank; (3) "Recognizing School Improvement in Academic Skills," Max Weiner; (4) "Achievements and Pitfalls in Funding Pre-Collegiate Public Education Activities," Fred A. Nelson; (5) "Strenthening Schools as Institutions," Theodore E. Lobman; (6) "The Partnership for Education in New York City," Frank J. Macchiarola; (7) "Public-Private Partnership to Improve the Schools: The Boston Model," Robert Spillane and Robert B. Swartz; (8) "New York State Board of Regents Action Plan to Improve Elementary and Secondary Education Results in New York State," Louise Matteoni; (9) "Thinking Skills and the Regents Action Plan," Paul Regnier; (10) Improving the Academic Performance of Urban Students through the Integration of Thinking Skills," Glen W. Cutlip; (11) "Categorical Programs for Disadvantaged Youth," James Smith; and (12) "A National View of High School Graduation Requirements," Chris Pipho. (KH)

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PROCEEDINGS:

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University / Urban Schools National Task Force

Improving Academic Skills of Urban Students

November 2 & 3, 1984
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EDITOR'S NOTE

The purpose of this Conference was to discuss how we might improve academic skills of urban students. We sought views of people who would represent varied perspectives regarding this question: College Board, school board members, academicians, officers of foundations, administrators of corporate/school partnerships, and representatives of state agencies.

In these Proceedings, George Hanford discusses what the SAT scores reveal about academic skills of urban students and the improvement of those skills. Max Weiner looks at how to recognize school improvement in academic skills through an analysis of test scores. Charlotte Frank then assesses the implications for the introduction of academic skills based on an evaluation of the New York City Promotional Gates Program. Fred Nelson presents the pros and cons of business investment in pre-collegiate public education. He finds that, although private investment cannot replace tax support of public schools, it is a necesary investment in our future that will pay positive dividends. Theodore Lobman argues that institutional change can be effected in schools by making appropriate comparisons with the way change is brought about within businesses. It is through such comparisons that donors can specify their criteria for investment. Next, Frank Macchiarola explains the work of the New York City Partnership in bringing together a coalition of business, higher education institutions, civic groups, and non-profit organizations "to make New York City a better place in which to live, work, and conduct business." Robert Spillane and

Robert Schwartz look at a similar partnership represented by the Boston Compact. Louise Matteoni reports on the New York State Board of Regents Action Plan as an attempt to improve elementary and secondary results; and in a related essay, Paul Regnier emphasizes teaching thinking as a crucial aspect of the Regents Action Plan. Similarly, Glen Cutlip stresses the importance of thinking skills development, this time in order to improve the academic performance of students in Maryland. James Smith argues that academic performance of poor urban youth can be improved through a revision of categorical programs. Finally, Chris Pipho considers the increase in the total number of academic units that many states now require for graduation.

Together these papers cover some of the most important issues facing educators today. It is hoped that this collection will stimulate further discussion about improving the academic performance of students in general and urban youth in particular.

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ACADEMIC SKILLS AND THE SAT

George H. Hanford
President
The College Board

The theme of this conference is "Improving Academic Skills of Urban Students." The title of this paper is "Academic Skills and the SAT." Putting the latter in the context of the former properly suggests that what this paper will address is what the SAT has to say about the academic skills of urban students and the improvement of those skills.

Applying the same reasoning process to the data available from the SAT, one can infer that the academic skills of urban students are improving but have a long way to go. This can not be stated as a conclusion based on hard data but one can reason one's way to it. There are no data because candidates for the SAT are not asked to identify themselves as urban, suburban, exurban, or rural although one might possibly come close with a study based on zip code. On the other hand, it is known that in the 53 largest cities in the United States almost all find a majority of their students to be minority. Further it is known that over the last four years the scores of minority students nationally have been going up proportionately more than those of the majority. Also, despite these improvements, SAT scores for black and Hispanic candidates continue to be much lower than those of majority candidates. Those three circumstances lead to the deduction that academic skills of students, as measured by the Scholastic Aptitude Test, are improving but have a long way to go.

That conclusion, at once hopeful but sobering, raises the questions

"Why the Improvement?" "Why the long way to go?" and, ultimately,"What can be done about the gap?" As for improvement, over the last four years, there are two pieces of evidence that appear to account, in some measure, for the halt in the decline in SAT scores for most students. One is that they have been taking more academic courses in high schools. The other is that the recent high school graduating classes have been made up of students whose NAEP scores started going up in the lower grades in the late 1970s. As noted earlier, however, minority students contributed more to the reversal of the SAT score decline than the majority. The most likely reasons are that they started lower and were more likely to improve; also Title I money spent on their education worked.

Many other reasons have been advanced to explain the turnaround in SAT scores, just as there were reasons to explain their decline. Most reasons fall in the category of what the Wirtz panel called "circumstantial evidence." One such possible cause is identified by Boyer, Goodlad, and Sizer among others.

Goodlad calls it too much "frontal teaching." Sizer pleads that "less is better." All deplore the emphasis on facts, memorization, and rote and each in his own way suggests that more time and attention ought to be paid to getting students to reason. If they are right, and if the SAT is a test of reasoning, as indeed it is, then one way to improve the reasoning skills and, therefore, the SAT scores of all students is to put more emphasis on the development of those skills.

That, not incidentally, is why the College Board has supported the reasoning skills project of this University/Urban Schools National Task

Force, and why the Educational EQuality Project this year will be emphasizing the teaching of the seven Basic Academic Competencies (including reasoning) in connection with the six Basic Academic Subjects (including English and math), which are the foci of the Task Force's effort.

But to return to the theme of this conference, one way to improve the academic skills of urban students, including those measured by the SAT, is to get them to take, in high school, more academic subject matter courses that stress competency development.

But even if the school reform movement takes hold and the quality of teaching and learning in academic subjects improves, many urban students will continue to be bypassed into nonacademic courses. That is why this writer was particularly pleased to be able to announce at the College Board's National Forum in New York last Tuesday, the appointment of a Commission on Precollege Guidance and Counseling under the chairmanship of Harold Howe. Indeed, the Commission has already held its first meeting, observed that businessmen want their new employees to have the same Basic Academic Competencies as the college-bound, and determined not to be totally constrained by the "precollege" reference in its title.

Similar reasoning has implications for the title of these remarks in relation to the theme of this conference. The opportunity to develop their basic skills, including those measured by the SAT, is the right of all students, including urban ones, college-bound, and otherwise. Getting them to take more academic courses, particularly ones which emphasize the development of the Basic Academic Competencies, is one way of doing so.

NEW YORK CITY PROMOTIONAL GATES PROGRAM: IMPLICATIONS FOR INSTRUCTION OF ACADEMIC SKILLS

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The Promotional Gates Program was initiated in 1981 in New York City for students in the fourth and the seventh grades whose achievements in reading limited their ability to benefit from instruction in all subject areas. In addition to concern for these students' educational needs, the effective domain (self-concept, attitudes, perceptions, values, personal and social ways of knowing) was included.

Program implementation during the first two years included intensive staff development using handbooks that had been prepared specifically for teachers of Gates classes. By 1983, it was necessary to know how well the program had affected the success of students who had been able to reverse defeat.

The evaluation criteria that shaped the Gates program were its philosophical constructs: guidelines for implementation through staff development.

Five major criteria guided the development of this program in terms of its instructional organization and objectives. They were the need for:

1. Teachers to have confidence in their students' capacities for growth (i.e., high expectations) while simultaneously maintaining a sympathetic attitude toward their present difficulties.

2. Flexibility in grouping students within Gates classes to maximize individual opportunities for growth.
3. Well planned instructional units and lessons in which activities consistently reflect stated objectives.
4. Students to have a continual review of their learning as well as a preview of the objectives of forthcoming teaching and learning experiences to serve as "think-links."
5. A classroom climate which supports teaching and learning by maximizing time-on-task and maintaining an environment conducive to growth.

In 1983, the Office of Educational Evaluation (OEE) studied these five criteria in randomly selected classes. On the basis of end-of-year test results, classes demonstrating a high average gain score among their students and classes showing low gain scores were identified. The former classes were labeled "effective." The OEE report[1] compared the implementation of these five criteria in the "effective" classes with implementation in those showing low average gain in reading test scores.

Expectations

The bases for the criteria relating to teachers' high expectations for their students with concommitant compassion for their current failure, emanates from the observation of several respected theorists. In 1957, Albert J. Harris, founder of graduate reading programs at City College and Queens College in New York City, stated: "Even if a child is emotionally well adjusted when he enters school, continued failure in the most important

part of school work is practically certain to have unfavorable effects on his personality."[2]

In 1979, Ronald Edmonds expanded upon this position by stating that:

> Teachers make a direct impact on the environment when learning takes place. The best teachers convey sympathy and warmth to their students but there is a growing sense that "love is not enough." The effect of teacher sympathy is currently thought to be secondary to a teacher's ability to convey high expectations for student success.[3]

The new handbook for Gates teachers reflected consideration of these points: guidelines for student work were designed to implement the observations that daily homework assignments were required and established as an expectation, and the content of those assignments was to reflect the teacher's sensitivity to students' actual capabilities and their fundamental need for successful experiences. Thus, homework was to reflect and reinforce what was already fully explained and understood in school, with students using reading materials at their independent reading levels. The length of time required for the assignment was to realistically conform to the students' present capabilities for the maintenance of a sustained effort. As students experienced success and improved work habits the time limit could be extended.

The diagnostic-prescriptive process was considered another opportunity for identifying relevant and reasonable expectations for each student. A multi-faceted assessment design was established that integrates norm-referenced, criterion-referenced, and teacher-made tests as the bases of sound instructional expectations and practices. Emphasis was placed on the importance of teacher-made tests and teachers' observations as the "leavening

agent" in all instructional plans.

Purposeful observation, informal inventories, and other techniques were used throughout the school year. Teacher-made tests have the advantage of being able to test the student's learning of the material that was actually taught. Effective remedial instruction was to be flexible enough to change as needs and expectations changed.

A further example of the blending of teachers' expectations with compassion for students' limitations was expressed in ways in which reading materials were selected. Both factors influenced selection of basal readers, literary works, and expository textual materials. "Easier" books provided successful reinforcement for students' capabilities, while more difficult texts offered the opportunity for expanding those capabilities.

In most reading programs, only materials at the "independent" or "instructional" levels were used, while the "frustration" level was avoided. For Gates students, reading materials at all three functional reading levels were used. Teachers judiciously selected interesting stories or relevant textual material at the students' frustration level to read to them. This was done to:

- share interesting stories that students were not yet able to read;
- expose students to more advanced vocabulary and concepts;
- initiate higher level comprehension processes (e.g., critical, inferential) through listening and speaking about them;
- teach specific content area material from texts that the students are unable to read.

Therefore, it is hardly surprising that OEE found that teachers of more successful Gates classes stood out from the general population of Gates teachers in that they demonstrated higher expectations for their students, while also demonstrating greater sympathy for them.

OEE conclusions were based on the data shown in Table 1

TABLE 1

Teachers' Attitudes
and Their Relationship
to High and Low Gain Classes

	Fourth Grade		Seventh Grade	
Variable	High Gain	Low Gain	High Gain	Low Gain
Teacher conveys a high degree of sympathy for students	80%	40%	100%	70%
Teacher conveys high expectations	90%	30%	80%	60%

Flexible Grouping

The second major guideline for the program was the commitment to flexible grouping within classes. Edmonds[3] and Edmonds and Blumner[4] supported the use of sub-grouping for instruction dependent on shared individual academic needs. The teachers' handbooks reflected this finding in a variety of ways.

From the opening description of the instructional organization, it was clear that lessons provided a variety of experiences in all modes of communication using varied types of reading material, and also provided variety in instructional grouping: large, small, and individual. Writing, for

example, was directed as an individual experience in daily journal writing and as a group experience when all students wrote on an assigned topic. The specific skill of reading comprehension was the shared objective of the whole group as they read literature or content area texts. The Small Group Tutorial which followed the whole class lesson provided more intensive instruction in similar skills.

The issue of individualization of instruction was intended to suggest "in the style of the individual" and did not imply that instruction needed to be delivered to each student on an individual basis. Indeed, a well-planned lesson that encouraged the interaction of ideas and language within a small, compatible group might be a more effective setting for the development of all reading skills. For example, a group of students who were deficient in sound-symbol associations (phonics) could receive directed instruction in that concept. During supervised practice, each student would do exercises in specific skills. Comprehension skill development could also result from small group interaction in which students share and stimulate their individual understanding of the concept underlying the particular skill.

Tutorial groups were formed on the basis of students' common instructional needs as diagnosed through criterion-referenced testing and/or observation. Grouping was flexible; as students demonstrated mastery of an instructional objective they were reassigned to another tutorial group. By regrouping, students avoided negative stigma that might become associated with any one group. They also observed a variety of learning styles as they met in small groups with different classmates.

As an alternative to a small group tutorial, a peer-tutoring program provided one-on-one instruction in which "teacher" and "learner" were students. By having one student teach another, barriers of age and status that may exist between teacher and student were reduced.

Flexible grouping was introduced in other than instructional situations as well. The independent study skills design recommended to Gates teachers was selected because of its possibilities for flexible grouping. SQ4R--Survey, Question, Read, Recite, Record, Review--introduced formally at Ohio State University in 1941, is probably one of the earliest designs for a systematic method of study that was particularly helpful in the comprehension of expository reading materials. Students may work alone, in pairs, or in small groups. Because students who used this method of study worked with relative independence, the reading material used could be different for each student or each group. Students who needed more time to study could be accommodated with this method, while the teacher worked with other students.

Venezky and Winfield's research reported in Schools that Succeed Beyond Expectations in Teaching Reading[5] reached the following conclusion: "The degree to which each student receives instruction that he or she needs is directly related to instructional efficiency."

The Gates program is based upon availability of multiple modes of presentation and their adaptability for individualization of instruction that enable the teacher to meet the individualized needs of the divergent learner. The OEE report concluded that at each grade level, two-thirds of the reading teachers (and two-fifths of the mathematics teachers) employed

flexible grouping for instruction. Teachers of more successful Gates classes (in mathematics and reading) at both grade levels were more likely to employ flexible grouping than their colleagues teaching less successful classes with one exception: this was not true for fourth grade reading classes.

TABLE 2

Teaching Behavior
and Their Relationship
to High and Low Gains

	Fourth Grade		Seventh Grade	
Variable	High Gain	Low Gain	High Gain	Low Gain
Used flexibility grouping for instruction	60%	70%	70%	50%

The data relating to this criterion reveal that in the seventh grade, 70% of the high gain and only 50% of the low gain classes used flexible grouping. The data from the fourth grade classes, however, show only 60% of the high gain compared to 70% of the low gain classes used flexible grouping See Table 2.

Relevant Instruction

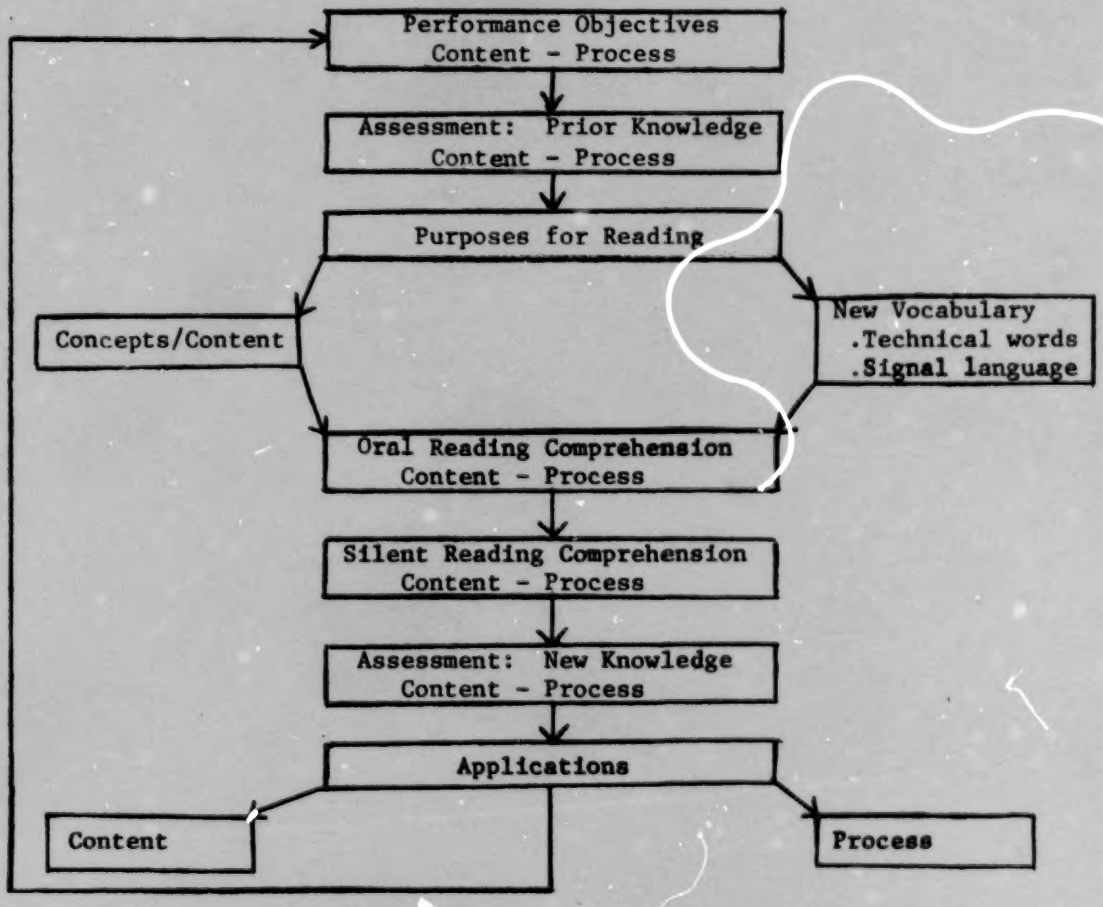
The third priority was related to the consistent relevance of instructional activities to the objectives they were designed to implement. Because performances or standardized tests were the dominant measures of success of this program, David Berliner's statement provided the needed cue:

"There is growing recognition that in order to increase test achievement there must be a high degree of congruence between lesson content and test objectives."[6]

In the teachers' handbooks, great emphasis was placed on lesson design and on structured sequence of instruction that would directly reflect and implement the stated instructional objectives.

Stated in graphic form, instruction follows this sequence when any printed textual material is used. See Figure 1.

FIGURE 1



The flow chart shown in Figure 1 was the model on which the instructional modules or units were designed. Whether using literary works, basal readers, or expository textual materials in social studies and science, lessons followed this sequence. As can be seen, lessons were based upon dual objectives which presented the content or information to be learned and the comprehension processes needed to understand the material. The comprehension processes were chosen from among the generic criteria included in standardized reading tests.

These dual objectives were attended to throughout the development of the lesson: in the pre-reading activities, through oral and silent comprehension, teaching and probing, and in the final application of extension activities. Teachers were encouraged to make students aware of lesson objectives, in understandable terms, to help them maintain proper focus.

Most Gates teachers did state the lesson objectives as can be seen in Table 3.

TABLE 3

Relationship of Stating Lesson Objectives to Gains

Variable	Fourth Grade		Seventh Grade	
	High Gain Classes	Low Gain Classes	High Gain Classes	Low Gain Classes
Stating what students are to learn in lesson	78%	44%	100%	80%

Continuity of Instruction

The fourth principle upon which the Gates program was based was the need to place instruction within a continuous, purposeful context by providing an ongoing review of preceding lessons and previews of those to follow. The summation of the lesson (Review), the direction toward independent follow-up (Homework), and the introduction to plans for the next day (Preview) were all seen as critical links in the instructional process.

In 1980, Dale Johnson wrote: "Reading comprehension involves processing textual material and integrating it with the experiences, prior knowledge and attitudes already in a reader's mind, building bridges between the new and the known."[7]

The teachers' handbooks explained this fundamental of good teaching in this way:

> It might seem unnecessary to point out that new learning needs to be built upon previously acquired knowledge and that the learner has to clearly understand the precise ways in which the new information connects with the old. However, students who have experienced difficulties in learning usually have difficulty in making these connections. Therefore, it becomes especially important to guide Gates students through an appreciation of the relevance of their prior knowledge before any new reading material is introduced.[8]

The object of guiding students through this process was twofold: they gain an awareness of what they already know about the new subject, and they gain facility in the process of assessing their prior knowledge so they can apply it independently in other learning situations.

The Gates program mandated 15 hours each week in the Communication Arts. The extended time spent in Communication Arts classes extended opportunities for learning the following: a review of the content and process objectives, a restatement of the theme of the reading material, an assessment of the learnings of the class (as a whole), and a preview of the next topics and processes to be addressed.

By providing such Review and Preview, students were helped to organize their thinking and develop positive attitudes toward future learning. These strategies were included in the recommended sequence of instruction and were given tangible expression and implementation in the handbooks' instructional modules.

Once again, the OEE data confirmed the effectiveness of these activities of Review and Preview in improving student's learning. See Table 4.

TABLE 4

Teaching Reviews and Previews and Their Relationship to Gains

	Fourth Grade		Seventh Grade	
Variable	High Gain	Low Gain	High Gain	Low Gain
Review previous instructions	67%	50%	78%	68%
Questions students' understanding	100%	100%	90%	80%
Respond to students' questions about what to do next	100%	86%	100%	75%

Climate

The fifth criterion, classroom climate for effective Gates classes, was perhaps the most difficult to measure. This criterion included the factors, tangible and intangible, that created the environment in which all teaching and learning experiences develop.

The classroom then was viewed as a small society in which both teachers and students were citizens. The role of reading instruction in this microcosm has been described by Courtney Cazden as follows: "Learning to read, like mature reading later on, is certainly a cognitive process; but it is also a very social activity, deeply embedded in interactions with teacher and peer."[9]

These interactions proceeded all day, through oral and silent, verbal and non-verbal cues. The physical arrangements of the room, evidence of pride in their work (both teacher and student) and evidence of mutual trust and respect all impacted on the classroom climate.

A positive climate, in turn, was assumed to maximize opportunities for teaching and learning. The teachers' handbook provided a framework for an instructional and effective environment for Gates classes. Although the instructional modules exemplified lessons that met the criteria on which this framework rested, in a large school system it was anticipated that a variety of teaching methods and materials would be used. The commitment was to assure an environment in which any method or material could successfully be implemented, one which maximized students' engagement in learning:

- a place for the teacher to meet privately with students; another setting where the teacher is centrally located and available for all to see and hear.
- furniture arrangements that maximize students' productivity; adequate work space; a place to work without interruption; another place to collaborate with peers; comfortable chairs, rugs for leisure reading.
- differentiated storage spaces for class library, art supplies, consumable practice books, etc.
- evidence of students' interests and efforts: displays of creative writing, drawings, dioramas, maps, etc.; a chart of "Books I have Read" or "Stories I Recommend," developed by students throughout the year.
- displays designed to stimulate students' interests and efforts: book jackets, travel posters, playbills, newspaper headlines, art reproductions, record albums, etc.
- a daily schedule of activities and special events.
- class rules stated in the positive, e.g., "Please talk softly when others are working," or "Please form a line along the window wall before we go to lunch."[10] See Table 5.

TABLE 5

Classroom Climate
Variables and
Their Relationship to Gains

	Fourth Grade		Seventh Grade	
Variable	High Gain	Low Gain	High Gain	Low Gain
Fully implemented the curriculum	90%	60%	70%	40%
Maintained student engagement on task	50%	40%	50%	10%
Relevant and interesting displays were on hand	100%	67%	70%	50%
Monitored student progress and provided feedback	80%	40%	60%	50%

The particular curriculum employed (i.e., ECRI, HILS, STAR, etc.) did not distinguish more successful from less successful Gates classes. Teachers of more successful Gates classes, however, were more likely to fully implement the curriculum employed than teachers of less successful classes. This difference was most notable in seventh grade reading classes where only one-half of the teachers implemented the given curriculum to a great extent.

Teachers' ability to establish and maintain student engagement on task distinguished more successful from less successful classes in both subject areas at both grade levels. (The behavioral indicators that were used included the brevity of techniques used to gain students' attention, the ability to prevent disruption and resolve problems; the use of cues

encouraging students to maintain pace; and adjustment of pace according to students' needs.) Relevant classroom displays were more prevalent in the rooms where the most successful reading classes were taught.

Reading and mathematics teachers at both grade levels--those in more and less successful classes--monitored student progress and provided instructional feedback by questioning students, telling the students whether an answer was correct or incorrect, and modeling appropriate responses or procedures.

Principal as Instructional Leader

Hugh Schoephoester entitled his book Building a Failure-Proof Reading Program, which was exactly what the Gates program was intended to be. He said, "School leaders must provide the organization and administration that teachers want and need."[11]

From the program's inception, staff development designs took into consideration needs of school building supervisors and administrators: their need to know what the program expected of teachers and their need to know what their roles would be as supervisors and administrators. Therefore, meetings were regularly held for discussion of their special responsibilities in this program, including issues of budget and personnel. At other times, supervisors attended teachers' workshops so that they would experience the same theoretical and practical preparation provided to their staffs.

Venezky and Winfield, in commenting on instructional leadership, said: "Setting a high goal for achievement and announcing this goal to staff and

parents...have been positively associated with successful programs."[12]

These criteria were incorporated into the OEE observations of administrators of effective Gates classes. Principals of schools in which Gates classes were measurably "effective," as compared to those who supervised less effective classes, were more likely to: value administrative help from their districts; attend Gates staff development sessions; call parents about a student's absence or classwork; be perceived as supportive by Gates teachers.

In summary, both the quantifiable results of the Gates program and the "soft data" reported by OEE, discussed in this paper, support findings of the Beginning Teacher Evaluation Study,[13] the work of Ronald Edmonds[14] and many others.

In quantifiable terms, the Gates program "enjoyed" a steadily declining enrollment as students' scores increased with each year. Three thousand fewer students were assigned to the program at the close of the 1983-84 year than were so identified for the initial classes of 1981. In this case, less means more: more time given to teaching basic reading processes; more on-going, teacher-made assessment activities have been employed; more teachers, principals, parents, and students have realized their expectations for success.

Finally, it should be emphasized that if staff development continues to be relevant to the concerns of teachers and administrators and continues to stress the basic five criteria, the number of students referred to the Gates program will continue to decline.

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RECOGNIZING SCHOOL IMPROVEMENT IN ACADEMIC SKILLS

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For a number of years, educational and psychological literature has reported positive results in such areas of achievement as mathematics and reading. These positive results have been attributed to various instructional techniques or materials used in experimental groups. After all these years, one wonders why the math and reading achievement scores have not assumed much higher gains than now reported. Further, we would expect fewer criticisms of the schools.

The purpose of this paper is to present at least one explanation for learning not being commensurate with increases in test scores. The explanation lies in the increased emphasis on group statistics showing gains without understanding their applications to small groups and to individuals. Stated somewhat differently, the public has become concerned about increases in scores--pretest to posttest--almost to the exclusion of the meaning of the increases and their relationship to sample size.

In order to show how emphasis on score increases may be misleading, three illustrations will be discussed: 1) Scholastic Achievement Tests, commonly referred to as SATs or College Boards, 2) achievement tests in reading reported in grade equivalents, and 3) a method used in scoring essays.

Before presenting illustrations, a few statements regarding pre and posttest experiments, sample size, and the concept of standard error of

measurement are offered in order to better understand the point made by illustrations.

Pretest-Posttest

One of the most difficult tasks an evaluator faces is related to measuring pre and post differences. Most experiments conducted in the schools follow the pretest-posttest model. Tests are administered to students at the beginning of a study and then, after a period of time has elapsed, the same or similar tests are administered. The scores are compared statistically to determine whether the difference between the pre and posttest is a "real" difference or one that could have occurred by chance. The same model is followed in determining whether children have "gained" in learning over a year's time. Tests are administered at the end of a school year and the scores are compared with those earned by the same students at the end of the previous school year or the beginning of the same year. If the scores are reported as significantly different, a term used by statisticians to separate those differences attributable to chance from those which are very unlikely to occur by chance, then there is an important gain (where the posttest scores are higher) or a loss (where the posttest scores are lower).

If the reported scores are based on reading achievement, for example, then the conclusion reached by the teachers, where significant gains are reported, is that the children improved in reading. If the between test time included a special instructional intervention, such as a "new" technique in teaching reading, then the improvement is credited to the technique.

When one sees data which purport to show gains, the gains which have taken place are those that most likely occurred when large numbers of students were involved in the study. Very briefly, the larger the number of subjects involved in a study, the smaller the difference needs to be in order to show a statistically significant difference. There are many ways, too numerous to mention in this paper, to show a difference. What is important, however, is the fact that a difference as small as 1 point in a given direction, up or down, can prove to be a "real" numerical change when a hundred thousand students are involved and only a chance occurrence if only one student is involved.

Standard Error of Measurement

Finally, the third concept, standard error of measurement, is a statistic that identifies the range of an earned score around the "true" score of the individual or group. Everyone knows a single test score may not be the "true" score. What would happen if the same or equivalent instrument were administered again without practice or undue time intervening? Would the score differ? By how much? The standard error of measurement is that measure given by test publishers to show how reliable their tests are and to answer these questions. For example, a student who earns a score of 80 on a test with an error of measurement reported as 10 will be expected, were he to take the exam a second time, to earn a score somewhere between 70 (80 minus 10) and 90 (80 plus 10). In short, the "true" score of a student with an 80 will fall somewhere between 70 and 90, two out of three times. These "gains" or "losses" are statistical

and may not be attributable to any experimental intervention.

Results of SATs

Now that the three concepts have been reviewed, the illustrations are presented. During the past few months, there have been a number of announcements informing the public that SAT Math scores have risen 3 points to 471 and the Verbal scores, 1 point to 426. The total of 4 points represent the largest recent gain earned by high school students. In 1980, the scores hit an all time low when the Math score was 466 and the Verbal was 424. A major portion of the increase was attributed to women. Women increased their scores by 4 points as compared to men who increased 2 points (SAT Math, 1984). In 1983, for the first time, more women (52%) took the SAT than men (48%). Nearly 1,000,000 in all took the SATs.

Parenthetically, New York State students increased their Math scores to 470 from 466 and their Verbal scores to 424 from 422. What is important about these statistics is the fact that the scores placed New York well down in the state ratings. South Dakota was first in the Verbal with a score of 520 and Iowa was first in Math with a 570.

What makes these statistics interesting is that scores earned by the South Dakota and Iowa students were earned by 3% of high school seniors who took the tests. In New York, two thirds of its seniors took the tests as compared to only one third for the national average. If only the top 3% of New York students' scores were reported, the Verbal score would have been 530 and the Math score 650. Both of these would have placed New York first.

What is more important for those concerned with individual growth is to interpret the meaning of the score gains for individuals. The error of measurement for the Verbal and Math sections of the SAT is approximately 30 points. This means that a change in score of up to 30 points, up or down, would not be unexpected. In fact, each correct item would raise the SAT score by a minimum of 10 points on the SAT scale. In reality, then, it would be impossible for a single student to "improve" by 1 or 4 points from one testing to the next. It is, of course, possible for small changes to occur when large numbers of students are tested. Table 1 shows the distribution of scores for the SAT Verbal and the SAT Math.

Table 1*
Selected Score Conversion Table for the SAT
Administered in April, 1981

Raw Score	College Board Scaled Score		Raw Score	College Board Scaled Score	
	SAT-V Score	SAT-M Score		SAT-V Score	SAT-M Score
85	800		≈		
84	790		≈		
83	780		≈		
82	770		30	390	540
81	760		29	390	530
80	760		28	380	520
79	750		27	370	510
78	740		26	360	500
77	730		25	360	490
76	720		24	350	480
75	720		23	340	470
≈			22	340	460
≈			≈		
≈			≈		
≈			≈		
66	650		12	260	360
65	640		11	260	350
64	640		10	250	340
63	630		9	240	330
62	620		8	230	320
61	620		7	230	320
60	610		6	220	310
59	600	800	5	210	300
58	590	790	4	210	290
57	590	780	3	200	280
≈			2	200	270
≈			1	200	260
47	510	690	0	200	260
46	510	690			
45	500	680			
44	490	670			
43	490	660			
42	480	650			
41	470	640			
40	460	630			
39	460	620			
38	450	610			

*Adapted from An SAT: Test and Technical Data for the Scholastic Aptitude Test Administered in April, 1981, APT, p. 29.

Reading Achievements

In the last few years, a number of large city school systems reported improvement in reading achievement test scores. Students' scores were reported as having moved above the national average. New York, for example, scored above national average scores for the past four years. Here again the average gain was a statistically significant one. What is important, however, is that the error of measurement in the reading achievement test was approximately 4 grade equivalent months. The average gain for the group was about 2 months.

Table 2 shows grade equivalents and corresponding raw scores. An individual would need a raw score of 65 to earn a grade equivalent of 4.3. If that same individual were to earn a 66 (one more question correct), his grade equivalent would be 4.5. This gain of 2 months would not be significant for an individual but would be a significant gain for a group.

Table 2*
Raw Score to Grade Equivalent

GE	Reading Read Vocab	Reading Read Comp	Reading Total Read	GE	Reading Read Vocab	Reading Read Comp	Reading Total Read
1.0	2	4	15	4.6	14		
1.1				4.7			
1.2			16-17	4.8		25	67
1.3		5	18	4.9			
1.4	3	6	19	5.0			68
1.5		7	20-21	5.1			
1.6	4	8	22-23	5.2			
1.7		9	24-25	5.3			
1.8	5	10	26-28	5.4			69
1.9		11	29-30	5.5			
2.0		12	31	5.6		26	
2.1	6	13	32-33	5.7			
2.2			34-35	5.8	15		
2.3	7	14	36-37	5.9			70
2.4		15	38-39	6.0			
2.5	8	16	40-41	6.1			
2.6			42-43	6.2			
2.7	9	17	44-45	6.3			
2.8		18	46-47	6.4			71
2.9			48	6.5			
3.0	10	19	49	6.6			
3.1			50	6.7		27	
3.2		20	51	6.8			
3.3	11		52-53	6.9			
3.4		21	54-55	7.0			72
3.5			56	7.1			
3.6	12	22	57-58	7.2			
3.7			59	7.3			
3.8			60	7.4			
3.9	13	23	61	7.5			
4.0			62-63	7.6			
4.1			64	7.7			
4.2				7.8			
4.3		24	65	7.9			73
4.4							
4.5			66				

*Adapted from California Achievement Tests, Norms Tables, Level 13, Forms C and D, 1978, p. 14.

Essay Scoring

In a study by Bossone and Weiner (1973), an essay scoring technique was devised to measure growth before and after teaching had occurred under varying conditions. Both pre and post essays were coded so that readers could not identify which essay was the first; both essays were written on the same topic; and readers were given the themes in pairs, that is, each student's pre and post themes were put together and the reader was asked to state which theme was better. In one experimental group, a significantly larger percentage of post themes were judged better than those of the control group. One could conclude that the experimental intervention employed a technique which improves writing significantly. The fact was that in this study, however, the quality of both the pre and post essays was considered very low. Stated somewhat differently: There was a change, but the change for an individual was of no consequence when quality was judged.

Parenthetically, Bossone (1981) showed that more useful information was obtained when essays were corrected by using his analytical scoring technique. More useful information for the instructor was derived from this method as compared to holistic scoring.

Conclusion

There is one major question the studies cited leave unanswered. The question is, "How much better does an individual or small group have to do on a posttest in order to achieve a significant difference that is qualitatively better, not just statistically better?" The reporting of

experimental results, especially in education, must not separate qualitative from quantitative approaches. What must be developed is a better way of explaining the findings so that the probable impact of an experimental intervention on the individual and small group is easily identified.

Two probably solutions are: that every study should include a statement and/or table showing what a different score means for an individual, a group size of 30, 60, and so on; and every study should include a combination of clinical views of gains with statistical findings; that is, there should be a discussion of how the experimental interventions are of value to the classroom instructor. The discussion would be appropriate only after the experimentors have determined that the same findings would result with smaller sample sizes.

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ACHIEVEMENTS AND PITFALLS IN FUNDING PRE-COLLEGIATE PUBLIC EDUCATION ACTIVITIES

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Why Should Business Support Public Elementary and Secondary Education?

We find ourselves using the phrase "pre-collegiate public education" as either a euphemism or a not-so-short-hand for the nation's public elementary and secondary schools. Regardless of what we call it, the basic and first question to be asked, and hopefully answered, is "Why should business support public education?" The primary, if perhaps too simplistic, reason is that it is very much in the interest of business to support public education. Let us face the fact that some form of self-interest, whether immediate or indirect and long-term, is a chief motive of corporate support and involvement in the non-profit world and in what has been called "corporate social responsibility." It is very much in the direct interest, both immediate and long-term, to have a well-educated workforce and pool of potential employees, to have well-educated consumers, shareholders, voters, and to have a stable, enlightened society in which to do business now and in the future.

Dr. Ernest L. Boyer, President of The Carnegie Foundation for the Advancement of Teaching and a former United States Commissioner of Education, has declared that "I believe the private sector should support public education because that is where the future of America resides." Boyer also has stated that "philanthropy must invest carefully and judiciously in public education...it's the place where our national priorities will be

sorted out."

The recent report by The Conference Board, "The Role of Business in Precollege Education," notes that "the basic raw material for all business operation is people. To the extent that business firms are able to hire adequately trained young people, they are able to replenish the basic feedstock for continued successful business operations." The Conference Board notes that "businesses increasingly focus on the quality of pre-college education and, in particular, on the extent to which the nation's schools are preparing students to work in a business environment that is becoming ever more technical."

Michael Timpane, President of Teachers College, Columbia University, in calling for "Increased Corporate Support for Urban Public Schools," states that "demographic changes are beginning to intensify corporate interest in the schools." Timpane makes this observation: "...it is a curious situation in which corporate leaders now find themselves: cut off from the levers of power in the public schools, out of touch with educational leaders--but dependent on the products of these same schools." Timpane also notes that the number of persons 14-24 years old will diminish by 6.3 million, or over 14 percent, and this will be accompanied by a significant increase in the percentage of minority students.

We, at Atlantic Richfield Company and Atlantic Richfield Foundation, located in downtown Los Angeles, are very aware of, and concerned about, these demographic changes. It has been said that this is the "era of the report," particularly in terms of education reform. Let me put in an

unsolicited plug for the report, "Demographic Imperatives: Implications for Educational Policy," published by the Institute for Educational Leadership and the American Council on Education. Because policy implications in this report have tremendous implications for all six categories of grantmaking within our Foundation and to the future of Atlantic Richfield Company as well, I wish to note some of the data in this report:

1. The over-65 population now outnumbers teenagers.

2. The average age of the white population is growing older: that of the minority population is much younger.

3. Minorities constitute the majority of school enrollment in 23 or 25 of the nation's largest cities.

4. By the year 2000, 53 major cities will have a majority minority population.

5. Sixty percent of all Hispanics live in three states (California, Texas, and New York), 85 percent in nine states.

6. Hispanics are the most urbanized group, with 88 percent living in cities, but more Blacks live in inner cities than any other population (71 percent).

7. Black and Hispanic participation in education diminishes drastically at higher levels.

8. The majority of Blacks and Hispanics in higher education are enrolled in community colleges or predominantly Black and Hispanic institutions.

9. Serious erosion has occurred in the rates of Black and Hispanic high school graduates who go on to college.

10. Eighty percent of all Black Ph.Ds and 76 percent of Hispanic Ph.Ds are in education and social sciences.

In my view, there is no more important shift in demographics pointed out in this concise and readable report than the chart showing "Minority

Student Enrollment in the Twenty-Five Largest City School Systems" from 1968 to 1978 to 1982. Los Angeles had over 500,000 students in its public schools in 1982 and 78.3% percent of them were minority, up from 70.3% in 1978, and up from only 42.5% in 1968. Dallas, another of ARCO's five key cities, now has 73.8% minority students among its 128,000 students, up from 66.2% in 1978, and up from only 38.4% in 1968.

History of Atlantic Richfield Foundation Support of Pre-Collegiate Education

For the few people here who do not know, Atlantic Richfield Foundation is the corporate Foundation of Atlantic Richfield Company. The Foundation's total expenditure in grants in 1983 was $36.8 million spread over six specific categories: Aid to Education (the largest single category representing 32% of the total grants in 1983); Community Programs (including the United Way); Health and Medical Services; Humanities and the Arts; Public Information and Miscellaneous; and Environmental Programs. Prior to 1980, most of the Foundation's grants, within the Aid to Education category, were grants to colleges and universities plus a few grants to minority student programs, particularly those that focus on math, science, and engineering. Boyer noted that "...historically, private philanthropy has been concerned about its status, and higher education--especially Ivy League higher education--is always safe. You can give a grant to Harvard with no questions asked about the legitimacy or the outcome of that investment...public education is, of course, another matter."

In February, 1980, we conducted a four-day retreat for our Foundation's

Officers, all Vice Presidents from the various operating companies that make up Altantic Richfield and all of whom came from each of ARCO's five key cities: Los Angeles, Dallas, Denver, Philadelphia, and Anchorage. During the retreat, and at most of the retreats held annually since 1980, we typically invite resource people from the non-profit world to discuss major issues and policy implications. In 1980, for example, one full day was spent discussing our Foundation's Aid to Education Program. As resource persons, I invited Boyer, who had been U. S. Commissioner of Education and had just become the President of The Carnegie Foundation for the Advancement of Teaching, and A.Bartlett Giamatti, who had just become Yale's President. In our discussions, Boyer emphasized the problems and challenges facing the nation's public secondary schools from his personal experience as U. S. Commissioner. At one point Giamatti said, "Yale has its problems; private universities have their problems; but unless we do something to improve the high school, we won't have universities worthy of the name." Coming from the President of Yale, that point impressed our Foundation's Officers, and it has had a lasting impact on our priorities.

That meeting led to two major policy changes within our Foundation. First, it led to an explicit commitment to do more to improve elementary and secondary public education. Secondly, it led to our Foundation's largest single grant of $2.55 million to The Carnegie Foundation for the Advancement of Teaching to do several things: $300,000 of the grant was to support a two-year study of the U. S. public high school; and the balance of the grant was for an action program of school improvement

grants to be implemented after the study and its recommendations became public. Without this major "action" component, I do not think our Officers and Board of Directors would have approved such a major grant. ARCO's Chairman, Robert O. Anderson, at the Board meeting when the grant was approved, said, "I think we're betting on the right horse." By that he did not mean Boyer or The Carnegie Foundation for the Advancement of Teaching but rather the public high schools and their importance to the long-term future of Atlantic Richfield Company.

How, and How Not to Support the Public Schools

I sometimes feel that whenever I mention a single grant of $2.55 million to other corporate grantmakers, I lose most members of the audience: their eyes glaze over, or they look at their watches. The most important point here is that you do not have to make huge grants to make a significant difference in your support of public schools. Of course, the schools are a multi-billion dollar enterprise, which is one reason that corporations have avoided supporting the schools. The costs are too great, and the problems are too vast or too political to become involved. I would like to describe, however, a variety of specific ways that corporations can support the public schools.

The Atlantic Richfield Foundation does not make direct grants to individual elementary schools, public or private. This policy was recently reaffirmed by the Foundation's Officers, and a statement to that effect is included in one of our most frequent turn-down letters. I personally believe that one of the biggest "pitfalls" in funding elementary or

secondary schools would be to start making direct grants to individual schools. Where would you start? Where would you stop? Many executives have their favorite prep schools lobbying for support, and some public schools have established fund-raising foundations. These schools are, in my opinion, the ones that need the least amount of additional support. Short of making direct grants to individual schools, there are many ways to help public education.

Matching Gifts Program

Many, if not most, corporations have matching gifts programs. A number of these matching gifts programs are limited to matching employee contributions to colleges and universities. Such programs are "safe" and easy to administer. Expanding a matching gifts program to include elementary and secondary schools is a strong signal to employees that the corporation believes that elementary and secondary schools are just as important to the corporation's future as colleges and universities. An important advantage of such an option is that it provides a way for the corporate foundation or corporate giving program to support individual schools, including those favorite prep schools, without getting in the business of making subjective judgments between and among thousands of individual schools, public and private. A liability, however, in including elementary and secondary schools in your matching gifts program is that the vast majority of employee contributions are to private schools rather than to public schools.

Adopt-A-School

For many of us it is easier to give money than time. Even so, I personally wish that every corporation had a meaningful adopt-a-school program in order to involve a significant number of employees with the public schools. Because I know it best, I will mention ARCO's Joint Educational Project (JEP) which has existed for almost seven years and includes between 85 and 105 employees who contribute two hours of work time each week to one of four urban Los Angeles public schools: two entirely Hispanic elementary schools, one junior high school, and the Manual Arts High School. And recently, the program has been expanded to include schools in Pasadena and Long Beach. One of the primary factors that makes this program successful is that the Company provides a full-time coordinator. She is housed in one of the schools and has an ARCO telephone line to remind the volunteers not to backslide. I believe that volunteering in the schools does at least as much good for the volunteer as it does for the school.

Volunteers

Just the way a matching gifts program rewards employees who give money, our Foundation has a volunteer grants program that encourages and rewards employees who give their personal time to tax-exempt organizations, including schools and colleges. The Foundation approves grants up to $500 to a qualifying non-profit organization, to which an employee contributes a significant amount of personal time (not including adopt-a-school which

is work time). So far in 1984 we have made 34 volunteer grants to educational organizations including many public elementary and secondary schools where our employees are volunteers.

Grants to Third Parties

One of the best ways for grantmakers to support public schools, short of making direct grants to individual schools, is through grants to third parties: organizations whose missions are to support and improve the public schools. These grants can be large or small, but they all send the signal that public schools are important to a corporation. Earlier I mentioned our large grant to The Carnegie Foundation for the Advancement of Teaching. The bulk of that grant did go to individual schools for school improvement projects to implement one or more recommendations in the report High School. In addition, 200 schools received grants of $3,000 each in the first round of grants in this program. We were not involved with the selection process. This program of grants was administered for Carnegie by the National Association of Secondary School Principals (NASSP), using our money. Three thousand dollars per school may not seem like a lot of money in a multi-billion dollar enterprise, but to a school principal who may not have a nickle of discretionary money, it can be very helpful. I have been impressed by how important these small grants are to the principals and schools that receive them.

Small grants to teachers are another important grant opportunity for corporate grantmakers through third parties. Pittsburgh's Allegheny Conference on Community Development is an outstanding

example of collaborative efforts among the public schools, the Mayor's office, the Urban League, and various corporations, awarding mini-grants to 100 innovative teachers for proposed projects. In Los Angeles our Foundation and other Los Angeles corporations helped to fund the Los Angeles Educational Partnership. The Partnership, in turn, was able to obtain a large grant from The Public Education Fund, also in Pittsburgh and funded by the Ford Foundation, to begin its own small grants for teachers program. The maximum grant is $400 which includes $100 to cover teacher development costs and up to $300 for the project itself.

Teacher and Principal Recognition

A little recognition goes a long way. In his book High School, Boyer states that "the time has come to reaffirm the centrality of teaching, to support good teachers and give them the recognition they deserve." In Chapter 16, "Classrooms and Corporations," Boyer states, "We urge that businesses in all communities support excellence in teaching by providing teacher grants, fellowships, and special commendations." Last year, we made a $5,000 grant to the Foundation for Educational Administration in California to fund both a program and an awards luncheon for about thirty outstanding teachers in Los Angeles County. Certificates were handed out by William Hoenig, the State's Superintendent of Public Instruction; and each teacher received flowers to take home. After the luncheon, one of the teachers came up to me and said that it was the nicest thing that had happened to her in thirty years of teaching. While a touching comment, it was also a sad commentary on the lack of recognition our many outstanding

teachers receive. Perhaps sending one of their number into orbit will help, but every city, county, and district could, and should, have its own teacher recognition program supported by local businesses and corporations.

Principal recognition is another way for corporations and businesses to demonstrate their support of the public schools. The Los Angeles Chamber of Commerce, with the full backing and cooperation of the Los Angeles Unified School District, has a very successful program of honoring approximately nine school principals each year. Our Foundation Officers happened to be meeting in Los Angeles the day of the luncheon honoring this year's principals, and now they want to help similar programs and efforts in our other ARCO cities. As part of our Carnegie School Improvement Grants Program, we have made a grant to the National Association of Secondary School Principals to host four three-day "principals' academies" for the 200 principals from the 200 schools receiving the initial round of school improvement grants. These four academies will be held in four ARCO cities, for about 50 principals each, and one of them will be held at an ARCO conference center in Newton Square, Pennsylvania. Boyer specifically recommends seminars for principals and states that these seminars "could be funded by corporate grants. Specifically, businesses with corporate campuses should donate the use of these instructional facilities for a week or two each year to the schools to be used as Academies for Principals." I am pleased that we have been able to implement the spirit and letter of some of these positive recommendations.

Another example of corporate recognition of outstanding principals and

teachers is a grant that Burger King has made to the National Association of Secondary School Principals to bring the 50 outstanding principals and the 50 "teachers of the year" to a three-day meeting at Captiva Island on the West Coast of Florida. This program may do more for the morale of principals and teachers than providing free "Whoppers."

Improvement of Teaching

Teachers and good teaching are the heart of the matter. I would like to mention several examples of what our Foundation is doing to improve teaching in the public elementary and secondary schools. Our Foundation's direct grants to support pre-collegiate education have grown from 4.5% of our total Aid to Education Grants (of $9,084,111) in 1980, to 8.3% in 1981 (of $10,715,000), and to 18.8% in 1983 (of $11,752,211). One of our small grants in 1980 was made to the Council for Basic Education. That general operating grant was for $10,000 because we were in agreement with what the Council stood for and did in the schools. Many corporate giving programs include similar modest grants for general operating support to a number of non-profit organizations. In this case, the general operating support award eventually grew to program support and then to support of major collaborative projects to help improve teaching in the public schools.

In 1982, we also supported the Council's Urban High School Project with a $20,000 grant. This led to a $25,000 planning grant to the Council to develop with Harvey Mudd College in Claremont, California, an extended residential summer program for math and science teachers from Los Angeles

area public schools. The Keck Foundation and TRW contributed to this program, which also received NSF support.

As in many endeavors in life, starting small is often a good idea. Given the success of the experience of a collaborative effort with both the public schools, an institution of higher learning, and corporate and/or private fourdation support, the Council was able to think bigger in Dallas. The Dallas Independent School District (DISD) faces an imminent shortage of math and science teachers. Working together, the Council for Basic Education (CBE), the University of Texas at Dallas, and a number of Atlantic Richfield Company people in Dallas, the DISD developed a four-component program to help improve teaching and learning in the Dallas schools. The first two components of this 1984-85 program are year-long institutes designed to retrain qualified veteran teachers of non-science subjects so that they can be certified as math or science teachers. The third component of this program provided CBE's "Writing to Learn" inservice training for 30 master teachers, department heads, and instructional supervisors in science and social studies. The fourth part of this program will give 60 middle and high school principals six half-days of inservice training as instructional leaders in their schools. The total grant to CBE for this four-phase project was $175,000, with over $130,000 of that total earmarked for teacher stipends and summer institutes. If successful, the Council believes that other corporate and/or foundation support for this program will be available in future years. I believe the Dallas program is an excellent example of a genuine collaborative effort among the public schools, higher education institutions, operating

corporate representatives, corporate funding sources, and a vital element, that "third party," acting as a catalyst, organizer, and change agent.

The Council for Basic Education has been able to organize similar collaborative teacher institutes in other cities, including a program at the University of San Francisco funded initially by the BankAmerica Foundation; in San Diego at the University of California, San Diego, and funded, in part, by TRW; and at the University of Pittsburgh, funded by the H. J. Heinz Company Foundation. To help evaluate these geographically separated and independent efforts, the Council has put together a Mathematics and Science Advisory Committee, chaired by Dr. F. James Rutherford, Chief Education Officer of the American Association for the Advancement of Science (AAAS).

The Remaining Achievement in Funding Public Education

Marsha Levine and Denis Doyle of the American Enterprise Institute, in their excellent article "Private Meets Public: An Examination of Contemporary Education," state that "it is clear that many corporations recognize the relationship between a strong school system and meeting their short-term employment needs. It is less clear that they link support of the school system to their concern for long-term manpower needs." They also note that "it is important for educators to determine their needs and their objectives and to articulate ways in which the private sector can share in meeting them. Corporations want to participate in solutions; they do not want to take responsibility for a set of problems. Specific objectives that will allow for incremental, identifiable successes are

necessary."

Earlier I discussed a number of specific examples of "incremental" ways that corporate funds can assist the public schools in achieving their basic mission to educate our youth. But it would be foolish for anyone to believe that all of our grantmaking combined will solve today's problems in the public schools. Our grantmaking is but a drop in the ocean of the multi-billion dollar enterprise of the public schools. Although our grantmaking can and does make some difference, our grantmaking cannot and must not, be perceived as a replacement for adequate tax support of the public schools. The great remaining achievement, I believe, is for all of us, for all of our foundations, businesses, and corporations to do everything we can to insure that our public schools are adequately supported financially and morally by the public. In California, the lobbying efforts by the California Roundtable, a group of some of the state's major business leaders, was at least partially responsible for the passage of Senate Bill 813, a major school reform and funding bill, and for the Governor signing it into law. All of which is to say we must be willing to invest our resources, even our taxes, our time, and our energy into our own, our business', our community's, and our nation's future, because these are investments that will pay positive dividends.

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STRENGTHENING SCHOOLS AS INSTITUTIONS

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The barrage of reports on public education during the past two years has caught the foundations' attention. A Pre-collegiate Group within the Council on Foundations has been formed, to which about thirty grantmaking organizations pay dues and some sixty attend meetings. Reasons vary. Many donors are interested in the schools directly. Some support public schools because they are important to meeting other objectives: minority participation in the sciences, a technologically prepared labor force, and reduction in teenage pregnancy. The purpose of this paper is to argue that most foundations' school improvement objectives will not be well served by the staff and curriculum development approaches made and funded by private donors. While the discussion concentrates on private donors, there are also lessons for those designing state and federal programs.

Two of the principal targets of school reform, the need to increase teachers' competence in subject matter and to improve curriculum resources (especially computers), lend themselves to widespread grantmaking preferences. Curriculum and staff development projects can be directly related to the interest of donors: teaching economics, mathematics, international affairs, or human relations. Subject-matter-oriented programs have other virtues. Costs may be low enough to permit the donor a sense of ownership. The participants usually come from a large number of schools and districts so that a single grant serves many potential applicants. Evaluation is

straightforward because you can count how many teachers attended and ask them whether they found the program useful. There seems to be no shortage of vendors, including university faculty in the summer, and education consultants. In addition, there is no question of need because almost all the national studies argue that teachers need more exposure to academic content of subjects for which they have responsibility. For these reasons, staff and curriculum development projects, including the purchase of equipment, are among the most common and attractive proposals private donors get.

Despite their attractiveness, conventional staff and curriculum projects are not likely to have the impact donors expect. Obstacles are the institutional problems widely documented in recent research: insufficient managerial autonomy, lack of time and competence for planning, excessive responsiveness to special interests, politicized governing boards, convenient but mindless personnel policies, and anti-professional procedures and traditions.

Such institutional problems minimize the effect of conventional teacher training, curriculum development, and equipment donation programs. Teachers, newly enthused with knowledge and hope, often return to organizations whose procedures, traditions, and other qualities defeat the purposes of the most elegant in-service programs. Especially vexing is that the schools most in need of improvement usually have institutional conditions that make significant changes in curriculum and teaching less likely to happen. The cynical conclusion is that donors must choose between helping relatively healthy schools get better or directing funds, via teachers, to unimprovable situations.

In the corporate world, stockholder or board demand for institutional change can be handled by major personnel and structural change or what is called "cleaning house." Institutional change in the schools is more difficult; faculty and sometimes management, tenure, and certification requirements can be obstacles. In some locations, the absence of competent replacements would make dismissals impractical. Diverse and often contradictory interests of government, employer, and community groups also may thwart systematic change. In many districts, the adversarial relationship between faculty and administrators has produced excessive procedural methods which drain motivation and creativity. In addition, there is very little money, time, or incentive to investigate possibilities, try new procedures, or combat the inertia of cynicism.

Donors are properly interested in teachers and curriculum, but they should consider the institutional impact of their grants. We would not expect an automobile company to recover if all that were done was to design a different car. Other areas, such as employee absenteeism, motivation, and the management system should also be addressed.

Institutional change is a formidable objective not only in schools but also with other forms of organizations that donors might understand. As noted in In Search of Excellence, profitmaking companies need institutional help too. Therefore, businesses can be appropriate comparisons.

Institutional Impact in Staff and Curriculum Development

In reviewing teacher training and curriculum development managed by universities or other service organizations, donors can ask that the

following criteria be met.

1. Fit with district or school plans. Check to determine whether districts and schools have done the following: Have they completed a credible self-assessment? Have they selected their priorities carefully? Does their proposal reflect the priorities of schools' representatives? Is the school willing to share the costs of the project?
2. Critical mass. There is a good deal of evidence that more than one teacher from a school should participate in staff and and curriculum development programs. A common experience helps sustain momentum after the program ends. The number of teachers may vary, and it may be appropriate that administrators be involved, but critical mass is a design element that should be addressed in a proposal. Donors should resist the temptation to maximize the geographic reach of a program if the impact on individual schools is uncertain.
3. Stability. Staff turnover is a major threat to institutional impact. Donors should assure themselves that personnel patterns indicate that those individuals in whom an investment is contemplated will continue to work together in the same institution.
4. Adequate time. The program should be long enough for participants to learn the material and plan what to do with it. Similarly donors of equipment should require that grantees submit evidence that teachers are, or will be, adequately prepared to use it.

5. Pedagogy and subject matter should be mixed. It is one thing to expose teachers to the latest findings in biotechnology or the intricacies of Central American politics, but participants must also be prepared to utilize this material properly. This may necessitate time for practice teaching and peer assessment.

6. Follow-up. Donors should require that there be a mechanism to support teachers, on site, during the school year. District administrators should encourage teachers to stay on the subject of the program, and the staff should be available periodically to review teachers' efforts.

7. Evaluation in practice. The justification for staff and curriculum development is to bring about change in the way things are done. Provision should be made to ask, "What are teachers doing differently?" well after the program is over.

Seeking Institutional Impact Directly

Private donors can also address institutional needs directly by doing the following:

1. Encourage schools' inner direction. Strong institutions improve themselves. Companies help meet this need with vigorous research and development (R & D) which is faculty and curriculum development in the schools' context. R & D is always difficult to sustain in periods of stress because schools, like companies or colleges, are reluctant to sacrifice current operating needs. Without their own R & D money, however, schools have to respond

passively to outsiders' priorities. Schools have little incentive to examine themselves regularly without the money to pay for it or to implement resulting recommendations.

Staff and curriculum programs are rarely designed to meet the idiosyncratic needs of individual schools. Instead, decisions to attend faculty and curriculum development programs are usually made by individual faculty, not by the principal or in accordance with a schools's plan. Where principals are involved in a decision to send faculty to a staff development program, their "approval" is often perfunctory; rarely do principals accept defined responsibility to support the teacher. In contrast, principals, or executive teams including faculty (the college model), should be able to shop for services, not just respond passively as opportunities designed elsewhere are presented. College and university presidents and deans testify how discretionary funds for faculty and curriculum development sustain the vitality of their institutions. How can we expect people to be instructional leaders if they cannot develop and deploy staff as they think best?

Another important element in protecting administrative discretion is restraint on community demands. Given the resources available, schools already try to do too much. School leaders should also be able to say "no" as well as "yes" to good ideas about adding services. Foundations can encourage school boards and educate community constituencies on the need to establish and stay with a limited set of priorities.

2. Encourage experimentation. A culture of experimentation is as essential to schools as it is to vigorous companies. Donors should link discretionary "school improvement" grants to temporary dispensation from the major rules in the way of experimentation. Habits can be changed. It may be useful to create non-adversarial forums where system changes can be considered before they are negotiated in contracts.

3. Break into the personnel system. Teachers and administrators consume the largest share of the school budget, and their problems affect the potential of any curriculum initiative. Project grants can create experiments to increase administrative-faculty cooperation and share responsibility. Alternative organizations of work assignments need to be tried, to which "master teacher" is just one. There might be opportunities for teachers to take administrative jobs part-time or for short periods. College personnel practices may provide good examples. New procedures are needed to recruit, evaluate, and assign administrators, a central objective for those concerned with minority or women's representation in administration. Districts should be encouraged to create schedules of staff development on which both teachers and curriculum administrators can depend.

4. Encourage comprehensive partnerships with business, colleges and universities. External partnerships have the potential not only to generate resources, but also to provide organizational development role models as well. Although many universities and companies are

assisting schools, it is surprising, given the importance of school management and personnel policy, that business schools, labor relations programs, and general experts in organizational development have not been involved. Corporations can do more than organize career seminars or buy band uniforms. College and business people can be involved in periodic reviews of the curriculum objectives, content, sequencing, texts, and other materials. Many university departments have visiting committees, why not schools?

5. Insist on matching funds. "If they do not pay for it, they will not value it" is a relevant cliché. Donors can promote institutional change by insisting on funding, perhaps by phasing in the schools' share. Local boards must be persuaded to value internally financed R & D, even in austere times. Foundation support can carry matching requirements.

Requests for funding of college faculty and curriculum development projects are generally viewed favorably by foundations. It should not be surprising that some aggressive schools are following the college example. The number of requests from districts is growing, and some are authored by newly titled "development directors." A plethora of proposals, however, will serve to remind foundations that only the states can underwrite lasting quality in the schools. States should be encouraged to create their own sources of R & D funds at both state and district levels. More important, states can be encouraged to review their

non-financial role in creating or inhibiting flexibility at the district and school level. The strong public demand for better schools invites legislatures and departments of education to become even more prescriptive, as if the extensive education code is not already enough. More precise curriculum standards, new personnel categories, and minimum salaries are needed. When mandated at the state level, however, the costs in reduced local flexibility may be greater than the benefits. By funding policy research with special concern for institutional conditions, donors can help states make good policy while preserving necessary local prerogatives.

The complexities of school improvement can daunt the most eager potential donor. It is the old story of giving a fishing rod instead of a fish to the hungry person. Strengthening schools as institutions is the only way to protect investments in individuals or curriculum. Recent history is full of small and large-scale reform efforts that did not outlast the money that paid for them.

THE PARTNERSHIP FOR EDUCATION IN NEW YORK CITY

Frank J. Macchiarola
President
New York City Partnership

The New York City Partnership, Inc. was formed in 1979 to bring together a city-wide coalition of businesses, institutions of higher education, civic groups, and non-profit organizations. Its structure and its stated mission, "to make New York City a better place in which to live, work, and conduct business," reflected a long-needed approach to problems and issues affecting all members of this coalition.

David Rockefeller, then Chairman of the Chase Manhattan Bank, was chosen as its first Chairman, and 120 members of the board were designated to oversee the operation of the organization. By 1984, the Partnership, working closely with both business and the public sector, had advanced programs in youth employment, economic development, public safety, moderate-income housing, education, and public transportation.

In that same year, a review of Partnership programs was undertaken, and a new focus for the 1980s was defined. That focus was the promotion of economic development in New York City. We began to notice that while the local economy had improved between 1977 and 1983, and there was a net increase of 126,400 jobs in New York City, most were in service businesses, such as banking, securities, communications, and business services; in many cases the city's residents did not benefit from this growth. In fact, only 45,000 of the new jobs went to New York City residents. Young people, in particular, were affected by unemployment. In order to ensure the continuing growth of

the city's service sector and the employment of more city residents, the Partnership identified three cititical needs that must be met:

1. preparing residents for future jobs in order to attract new businesses, reducing unemployment, and training a work force to meet emerging job patterns;
2. keeping the "back offices" or operations units of our major service companies in New York because they generate the fastest growing number of entry level and moderate income jobs for our residents;
3. improving the business climate in areas such as taxation, regulation, infrastructure, and municipal services, all of which are critical to the attraction and retention of business and jobs.

The first of these needs is being addressed by The Education Committee of the New York City Partnership. The Committee, formed in 1982, is working with the public schools to prepare young people to participate in and contribute to the economic future of New York City. It focuses on strengthening the link between school and work, as well as on obtaining corporate support for career programs. Its members include chief executive officers of Fortune 500 corporations, presidents of universities, community and labor leaders, and the Chancellor of the public school system. See Appendix.

In assuming the responsibility of chairing the Committee, J. Richard Munro, President and Chief Executive Officer of Time, Incorporated said: "Only recently have so many of us come to appreciate how much our future productivity and competition in world markets will depend on the basic skills

we teach children now. Supporting our schools is the best investment we can make in our future."

The time is now for active interest by business because today the economy of New York City is in transition. Jobs in some industries are being phased out while newer service industries, requiring new skills, are on the rise.

Our city is rapidly becoming a service center for the world. Employment opportunities in a dazzling variety of fields are just beginning to open. But over 90% of these new positions will require a high school diploma. As the new jobs arrive, will the skilled workers we need be there to fill them? The answer, to a large extent, rests with the public schools. And it is our belief that our schools need help. More than a third of city high school students drop out before graduation. Thousands of young people lack basic skills; in far too many cases, the skills they do possess do not match employer needs. Yet, federal aid is declining and state resources are not sufficient. Recognizing that young people today need to see the relationship between staying in school and getting a job, the committee has helped design several programs with the active cooperation of Chancellor Quinones of the New York City Public Schools. As a result, the Partnership promotes programs that prepare students for more productive careers and that meet the growing needs of corporate employers. Drawing on the considerable resources of the business community, these programs are designed to revitalize high schools, add more job-related skills to the curriculum, and, through continuous programs in grades 7 through 12, make work an integral part of every student's education. At the present time, there are

four programs that the Partnership is supporting:

Join A School

Join A School is the umbrella program which incorporates the work experience, mentoring, and high school redesign initiatives. It brings companies together with individual schools to help students prepare for more productive careers. Business staff and the school staff join as partners on projects mutually selected. For schools, this program means an injection of new resources and ideas; it gives students, teachers, and administrators a chance to see the business environment at its best, it gives young people a better opportunity to prepare themselves for rewarding careers. For businesses, Join A School stimulates student interest in the company, making it easier to recruit workers. As an added bonus, companies may be eligible for important tax credits. Existing Join A School ventures include John Jay High School and Manufacturers Hanover Trust, William Cullen Bryant High School and Equitable Life, Seward Park High School and CBS, James Monroe High School and Ogilvy and Mather, Martin Luther King High School and American Can Company, and George Washington High School and Chemical Bank. We have set as a goal, to be accomplished by the end of this academic year, 20 Join A School relationships.

Volunteer Mentoring

This program is designed to reduce the dropout rate by giving high school students personal encouragement and support. Mentors, recruited from the private and public sector and city colleges work with youngsters one-on-one to help them acquire employable skills, adapt to the requirements of the

workplace, learn, and grow. Mentors also give students positive role models. These mentors tutor them in basic subjects, as well as job-related skills, advise them on careers, and help them develop positive attitudes and good work habits. Three kinds of mentors are functioning:

Corporate Mentors

Already volunteers from Equitable, AT&T, General Electric, Exxon, and Ciba Geigy are working with students in William Cullen Bryant High School in Queens and the Manhattan Center for Science and Math. They are helping youngsters explore careers, learn about work, and choose courses of study that will give them the skills they need to find entry level jobs.

Medical Mentors

Workers and staff from Lebanon Hospital have established research projects at Morris and William Howard Taft High Schools. Under their supervision, students are engaged in pediatrics and pathology research, and are thereby encouraged to seek health careers.

College Mentors

Faculty and students from Queens College, Lehman College, and LaGuardia Community College of the City University are serving as mentors in John Bowne, DeWitt Clinton, Walton, and Long Island City High Schools. They are tutoring students in basic academic subjects and providing counseling.

Work Experience

There is really no substitute for work experience. The Partnership knows this because of the success of the Summer Jobs program, which during the last four summers has provided more than 70,000 jobs for disadvantaged

youth; 26,600 in 1984 alone. This enthusiasm was conveyed by James F. Hoge, General Chairman of Summer Jobs '84 and Publisher and Chief Executive Officer of The New York Daily News. In his words:

> "During the campaign, I met some terrific young people who are participating in Summer Jobs '84. They're motivated, qualified and enthusiastic. We're proud of the results of which we have only been a part. I think the real payoff will come 10-15 years from now when someone bumps into one of us and says, 'You helped me get my first job.' Then we'll be able to see the individual success stories and know we helped get them started. I can't think of a higher compliment than that."

Knowing they can get practical work experience, students are motivated to remain in school and to acquire new job skills. This has also aroused interest in careers and made them better prepared to enter the work force after graduation.

The Partnership is working with the private sector to expand opportunities for student internships, apprenticeships, summer jobs, on-the-job training and full-time positions. Because youngsters of different ages need different types of exposure to the working world, the programs are grouped in three categories.

Career Shadowing

Students 14 and 15 years of age need to explore career options in a realistic setting. To accomplish this, they are assigned to mentors recruited from the private sector. For two to four hours each week, they "shadow," or observe, the business and professional activities of their mentors. Career shadowing gives students a realistic introduction to the workplace. It allows them to observe working people first hand and enables

them to make informed choices about future courses of study.

Stipended Work Experience

Fifteen and sixteen year olds also need exposure to the workplace. They are ready for work, but, in most cases, do not have the job skills employers want. These students are offered part-time jobs, at an agreed upon stipend, in conjunction with structured classroom programs. They work with supervisors who coordinate all activities with the schools.

Paid Work Experience

Many students 16 to 18 years of age qualify for paid part-time positions in the private sector through their participation in the Training Opportunities Program (TOP), the Cooperative Education Program, and school-developed work experience programs. TOP offers on-the-job training and work, depending on each student's needs, interests, and abilities. All programs are supervised by employers who pay half the cost. The Cooperative Education Program provides part-time and summer jobs for 20,000 students each year. In many cases, the jobs are related to specific courses of study. School-developed work experience is initiated directly by principals or classroom teachers. Jobs can range from internships for business education students to entry level positions in hospitals or senior citizen centers for health career students.

Revitalizing and Redesigning High Schools

The Partnership, along with New York City Public School administrators, believes strongly that ineffective schools can be revitalized. New themes, new programs, a specialized curriculum, and a new career orientation--all

can turn failing institutions into vibrant centers of learning. An outstanding example of how education can be revitalized is the Academy of Finance, sponsored by Shearson Lehman/American Express. This new academy, founded in 1982, gives Shearson a way to provide more trained workers for the financial services industry and gives students a lifeline to new job opportunities. In the first year, eleventh graders took courses in accounting and finance while teachers attended workshops to familiarize themselves with the brokerage business. By 1983, the Academy offered courses in five city high schools. They were so successful that the Board of Education is planning to expand the Academy into a High School of Finance. Over the next few years, the responsibility for preparing students for diverse careers will be addressed by opening new theme schools or by implementing specialized career programs in already existing academic high schools. But the revitalization of high schools is a complicated task. It requires not only the support of a single company but also the support of an entire industry. The process begins when a major corporation in a particular industry takes the lead and forms an Advisory Council. Drawing on the expertise of other companies in the industry, the Council works with the Board of Education to design a specialized curriculum for the school. Schools of Telecommunication, Business, and High Technology are being developed by the New York City Public School system, the Partnership, and Partnership companies.

As a result, our agenda remains quite a full one. We have a campaign for 1984 to help the school system create at least ten new corporate/school partnerships and secure 10,000-12,000 job placements for eleventh and twelth graders. Also we plan to recruit 3,000 corporate volunteers to mentor ninth

and tenth graders. In addition, we plan to formulate five industry advisory councils to develop five additional theme high schools in 1984, and to increase the number of private sector summer jobs in 1985 under the Metropolitan Life Insurance Company.

Our approach is to emphasize advantages business can obtain by supporting our youngsters. We tell business that "Helping Our Schools is Good Business." We emphasize that the cost of wasted talent and lives to businesses and city is already too great. By combating dropout rates, we tell them that they are helping to hold down the high costs of lost productivity, unemployment, welfare, and crime. In short, by helping our schools they are helping their company and New York. Specifically, we ask them to consider the following advantages:

Lower Training Costs

The cost of retraining poorly educated workers is astronomical. AT&T alone spends $6 million each year to teach its employees basic writing and math skills. By improving the quality of public education, they can significantly lower their own training expenses.

Higher Productivity and Profits

Increased productivity from a more qualified labor force means higher bottom line profits for the corporation.

Lower Insurance Rates

Better trained workers are less accident prone. This helps reduce insurance premiums and compensation costs.

Corporate Citizenship

They will create goodwill among present employees, stockholders, and customers, who will value and appreciate the contribution to our city.

Attract and Retain New Employees

Their participation will also boost their image among school-age students, some of whom may become future employees.

Affirmative Action

By helping to prepare minority youth for employment, they will be actively addressing Affirmative Action objectives.

Volunteerism

By encouraging employees to help our schools, they will be providing an excellent outlet for community service volunteers.

Tax Credits

Depending on the nature of the contribution, a company may be eligible for certain tax credits.

Good Company

The association with other businesses and organizations within the Partnership puts them in very good company; they will be joining a roster of the largest, most prestigious corporations in the United States and the world.

In short, the Partnership's plans are based on the role of broker. We bring the people together to improve the quality of New York City.

APPENDIX

Chairman

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President and Chief Executive Officer
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Vice Chairman

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President
New York Urban Coalition

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Chairman of the Board and
Chief Executive Officer
CBS, Inc.

PUBLIC-PRIVATE PARTNERSHIP TO IMPROVE THE SCHOOLS: THE BOSTON MODEL

Robert R. Spillane
Superintendent
Boston Public Schools
and
Robert B. Schwartz
Executive Director
The Boston Compact

The Boston Compact represents a new framework for school, business, and university collaboration in Boston. The Compact consists of two citywide agreements, each with measurable goals and mutual accountability. The first agreement, signed between Boston's business leaders and the Boston School Committee in September, 1982, provides improved access to jobs for Boston public school graduates in exchange for improved educational performance. The second agreement, signed a year later by local higher education leaders and the Boston School Committee, focuses on improving access to post-secondary education for Boston's high school graduates.

Although the Compact is a new idea, it developed out of a seven year history of partnership programs between individual Boston schools and individual Boston colleges and businesses. The business partnerships came into being just before desegregation, and the college pairings were created by Federal Judge W. Arthur Garrity as a part of his remedial desegregation orders. Although there were numerous instances of successful programs developed between individual schools and their business or university partners, the initial energy that fueled the partnerships had dissipated by 1981. Business and university leaders had become increasingly frustrated by

the failure of their programs to have any systemwide effect. and they had begun to wonder about the utility of trying to help individual schools in a system that was characterized by political and managerial chaos.

When Robert Spillane arrived in Boston in 1981, as the city's fourth superintendent in eleven months, he received a consistent message from key university presidents and corporate chief executive officers, which said, "We have lots of resources and we stand ready to help, but you must first show us how you can get your own house in order." Spillane began by setting some clear systemwide goals and by demonstrating that he could make effective use of outside help.

When he took a hard look inside the system, he realized he was not in a position to ask anyone for help until fundamental internal steps were taken. He lacked some rudimentary information: no one could tell him how much money the system was spending, for example, or how many employees it had, or how those employees were deployed. The personnel, payroll, and budget offices operated in isolation from one another. No one could explain how teachers and administrators were evaluated, for there were no written criteria for performance evaluation of professionals. No one could remember the last time a teacher was dismissed for incompetence. No one could tell him which programs worked and which ones did not. There was no research and evaluation unit. Most importantly, no one could state what a Boston public school graduate was supposed to know or be able to do in any particular subject area. There were no written curriculum objectives. In a fundamental sense, Boston had no school system at all. Rather, it had a collection of schools (some good, some dreadful, some indifferent) with little sense of common

purpose and direction.

By the time the new administration met with business and university leaders in May, 1982, to open the discussion that led to the Boston Compact, the Superintendent had taken the initial steps necessary to demonstrate his willingness to create and manage a system. With the leadership of Rosemarie Rosen, Deputy Superintendent for Finance and Administration, he put personnel and cost control systems into place, and as a result, he could tell how many employees there were, where they were assigned, and what their responsibilities were. He instituted a performance evaluation system for all personnel, and demonstrated his willingness to act on the results of those evaluations. He also had underway the first stage of a comprehensive effort to restructure the system's instructional program, including the development of written curriculum objectives for each subject area at each grade level which would then be followed by the development of testing programs pegged to those systemwide objectives, the implementation of a new set of promotional policies based on mastery of those objectives, and a stronger set of high school graduation requirements.

Thus, by the time discussions began, a direction had been set for the system, and the participants were able to have a focused discussion with business and university leaders on how their institutions might help. The conversations with corporate leaders quickly focused on jobs. Boston had an unusually strong Private Industry Council (PIC) with a clear commitment to work with the schools. The PIC and the schools had collaborated on an effective private sector summer jobs program, and the schools were just

completing the first year of a collaborative job counseling and development program in two high schools. All were beginning to understand just how powerful a tool a carefully designed jobs program could be in enhancing student motivation and rewarding student performance. The key, however, was to establish in everyone's mind (student, teacher, employer) the link between raising the standards and expectations of the classroom, and improving a student's prospects for success in finding and holding a job.

In order to demonstrate this connection, the school administration negotiated a formal agreement with Boston's business leadership in which pledges were made to raise school standards and performance in four key areas in return for the business community's commitment to increase the flow of summer jobs available to students, and full-time jobs for graduates. What gave the agreement force was that each party committed itself to annual measurable goals. In 1983, when the first phase of the Boston Compact took effect, business committed itself to raise the pool of summer jobs from 750 to 1,000, and to provide 400 full-time jobs for graduating seniors. In order to carry out these goals, they promised to recruit 200 companies to sign the Compact hiring pledge, which committed that company to use the school system as a source of first referral for entry-level job openings. In its first year, the business community exceeded all three goals. It then raised its targets to 50% for 1984, and, at this time of writing, 316 companies have signed the employer agreement, 1,766 students were placed in private sector summer jobs, and nearly 600 graduates of the class of 1984 were placed in full-time positions.

On the school side, the Compact agreement with the business community

was used to trigger an intensive planning process in each of the 17 high schools; this plan centered around four goals: increasing student attendance, reducing the dropout rate, improving basic skills, and expanding job preparation and placement activities. In 1983, each school developed a detailed plan indicating how it was going to improve these goals, and in the 1983-84 school year, these plans began to be implemented. First year progress has been extremely encouraging: reading and math scores are up, with most grades performing at or above grade level. Although the high school scores continue to lag behind the rest of the system, five percent improvement goals in basic skills, and in student attendance were met. The dropout goal was not met, but for the first time in four years, the rate has begun to come down.

Once the compact with the business community was forged, discussions were opened with the higher educatior community, and in November, 1983, an agreement was reached with 25 colleges and universities committing the schools to work jointly toward a five percent increase in the number of Boston graduates going on to higher education in each of the next five years. School personnel agreed to take a series of measures to raise standards and strengthen academic curriculum; college personnel agreed to improve the quality of their higher education information and counseling activities in the schools; to step up their assistance in curriculum and staff development; and to expand their programs to retain graduates once they enroll. Further, it was agreed to pursue the development of a major corporate scholarship program aimed at increasing scholarship dollars available to Boston students

Although the university agreement is just going into effect this year, several promising steps have already been taken to move toward the program's goals. Individual school plans have been rewritten for 1984-85 to incorporate the new focus on higher education as well as job preparation. A new Higher Education Information Center has just been opened in the main branch of our public library, which will organize a series of information and outreach programs in the schools. A College Retention Consortium has been formed involving staff from 17 colleges and 5 high schools sharing information and ideas about effective strategies for helping urban students succeed in higher education. The Board of Regents, along with a major bank, provided funding to establish a teacher fellowship program, under which 70 teachers a year will be selected to participate in a university-based summer institute especially tailored to Boston's needs. This past summer the topic was elementary science, and the faculty was drawn from several local colleges and cultural institutions. This year, with additional state support, the schools and their college partners will be exploring the creation of a major teacher retraining center modeled on a program now underway in Pittsburgh.

What has been learned from all of this?

First, a school system must be clear about its goals and priorities before it can make effective use of business and university resources. Neither business nor higher education wants to dictate agenda; rather, they want to respond to needs.

Second, systemwide agreements with measurable goals and

annual reporting requirements can establish mutual accountability, and can provide principals and teachers with a clear focus for their work.

Third, the bottom line for schools is to prepare graduates to take the next step; building bridges connecting high schools to worksites and to colleges ought to be the central goal of the Boston partnership programs.

Fourth, institutional self-interest is in the long run a much more reliable source of motivation than is altruism. Colleges and businesses now understand that they have an economic as well as social interest in helping the public schools to improve their performance.

And finally, a climate of belief in urban schools is the precondition for serious reform. Such a climate can only be created when all the major institutions in a community come together to demonstrate in the most tangible way their commitment to improving educational or employment opportunities for young people.

NEW YORK STATE BOARD OF REGENTS ACTION PLAN TO IMPROVE ELEMENTARY AND SECONDARY EDUCATION RESULTS IN NEW YORK STATE

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The New York State Board of Regents Action Plan, which received final approval in March, 1984, should not be viewed as a response to A Nation at Risk or to any of the other published reports that attempt to survey the state of education and suggest standards and alternatives. Rather, the Action Plan should be viewed in the large context within which it was developed.

For several years, the Board of Regents has taken steps to improve the effectiveness of the educational delivery system. In 1974, the Board of Regents developed and printed Goals for Elementary and Secondary Education. In 1977, it established the competency testing program to identify minimum standards which were expected of all students. Along with competency tests, the Board mandated remediation for all those who did not reach the statewide reference point on state administered tests. This was to ensure that, as early as the third grade, students who were having difficulty would be identified, that program adjustments would be made to provide remediation, and that parents would be notified of the need for and the nature of the remediation. In this manner, it was indicated that student achievement on competency tests at the high school level was the responsibility of teachers throughout the system, not solely of those at the high school level. These checkpoints currently occur at the third, fifth, sixth, and eighth grade levels for various subjects. The competency tests are given at the high school level.

In addition to articulating curricular standards, the Board strengthened requirements for performance of secondary schools. In order to be registered and, therefore, grant diplomas, a school must have a minimum percentage rate of students passing the competency test and a minimum retention rate of students in grades nine to twelve (the latter to discourage schools from easing out, prior to the twelfth grade, those students who might lower the number of students passing the competency tests).

To support its efforts, the Board has requested additional state funding from the State Legislature. This past year, the Legislature did, in fact, provide the largest increase ever for the general support of education and to targeted areas.

This year, for the first time, the Regents and the State Education Department are implementing a new requirement for statewide entry-level examinations for prospective teachers. All persons who plan to teach in New York State will be required to complete the examinations prior to certification.

Among other steps that have been taken, the Board has requested the State Education Department to review all curricula in order to determine where revisions have to be made and to prepare these revisions with the cooperative efforts of teachers and administrators. In addition, the Resource Allocation Plan (RAP) has been established to target Department resources to those schools most in need of assistance.

The actions taken above have been extended so that services are provided for handicapped students as well as to the general student population. A comprehensive and coordinated service delivery model has been developed

linking the Offices of Vocational Rehabilitation, Occupational and Continuing Education and the Education of Children with Handicapping Conditions.

These reflect the general context of New York State's efforts to improve elementary and secondary results in New York State. The Action Plan is another step in that direction. The development of the Action Plan merits some attention. In 1982, the Board of Regents and the State Education Department involved over 4,000 individuals in a review of the 1974 goals for elementary and secondary education. As a result of that review, the Board of Regents developed its Action Plan. In 1983, the Action Plan was the subject of the regional conferences. Over 10,000 individuals and numerous organizations reacted to the Plan. The version, approved in March, 1984, represents the culmination of the Board's best thinking as of that date.

Specific curriculum suggestions in the Action Plan have received a great deal of attention. For example, the Plan calls for instruction in a language other than English during grades K through 9. This is a radical departure from the curriculum requirements presently in place. The Plan also calls for the addition of a unit in the study of technology and three quarters of a unit in the study of home and career skills at the seventh and eighth grades levels; an increase in mathematics and science requirements at the high school level from one unit to two units with accompanying competency tests; an increase from three to four units of social studies; a requirement of three years of the study of a language other than English for Regents diploma students; and a number of other specific subject area changes.

In addition, a number of generic changes that cut across grade levels

and subjects are an integral part of the Action Plan. These have not received the attention they merit. The Board of Regents has increased its focus on early childhood education with a proposal to fund optional pre-kindergarten programs for children at age four. These programs are to follow programs developed by the successful experimental kindergarten programs which have been carried out in the state over the past several years.

Schools must continue to concentrate on developing the child's capacity in English, that is, in listening, speaking, reading, and writing. This concentration must take place during the early school years and continue throughout. Coupled with this concentration and pervading all instruction should be increased attention to obtain more effective and efficient use of existing instructional time.

Computers have been the subject of any number of conferences, workshops, seminars, and articles. In the Action Plan, the Regents call for the incorporation of computer instruction and other relevant technology into the curriculum. The computer is to be viewed as a tool of instruction and not as the topic of instruction in a separate course.

Realizing the limits of the school day and its fragmentation, the Plan encourages the use of an interdisciplinary approach to instruction from grades three through twelve. Curriculum materials in separate subjects are being developed that reflect the interdisciplinary method of learning and the application of knowledge from various subjects to themes and/or problems.

Many of the changes may require retraining of teachers. The Board of Regents has requested and continues to request the resources to implement an ongoing program of staff development.

One aspect of the Action Plan merits closer attention. One of the generic changes deals with the development of thinking skills. Specifically, the change seeks to "ensure that all students are learning to think logically and creatively and to apply reasoning to issues and problems in all subjects at all grade levels." Further, discussion indicates that the State Education Department will develop materials and approaches for the realization of this change.

One of Paul Regnier's responsibilities is to help see that those aspects of the Action Plan are implemented which are curricular and which require coordination among curriculum development, staff development, and testing programs in various school subjects. Regnier will be discussing what the Regents say about teaching "thinking" in their Action Plan and what directions we are moving in to implement the Regents statement.

THINKING SKILLS AND THE REGENTS ACTION PLAN

Paul Regnier
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Regent Matteoni has discussed the comprehensiveness of the Regents Action Plan, which will provide the basis for educational reform in New York State for years to come. The regulations mandating new course requirements, testing, and increased accountability will soon be in place; but equally important, is a series of "generic changes" which will affect schooling throughout our State. In their Action Plan, the Regents state that the "generic changes in instruction" listed in the Plan "will have as much influence on the way elementary and secondary education proceeds in New York State over the next several years as will changes in instructional requirements." Among these generic changes is an increasing emphasis on teaching youngsters to think clearly and effectively. To quote the Regents Action Plan, this generic change will:

> Ensure that all students are learning to think logically and creatively and to apply reasoning to issues and problems in all subjects at all grade levels. The Regents subgoals #1.1 and #1.2 define aspects of learning which are fundamental to improving the quality of all instruction. Nothing is more important to the quality of what students learn than the extent to which they learn to think in disciplined ways about what they study: to think logically and creatively and to apply reasoning skills to issues and problems. As part of implementing this Action Plan, the Education Department, working with teachers and administrators, will clearly identify specific reasoning and problem solving skills and develop specific sequential student objectives for all relevant subjects at all grade levels to ensure that students acquire these skills and learn to apply them within the subjects they study and to issues and problems in life outside school.

When one begins to implement a policy like this, questions arise about terminology and about how best to accomplish the policy, and Regent Matteoni and I are here today as much to hear the views of others as to tell them our views. Let me explain how we, in the New York State Education Department, understand the Regents policy at this time and what we expect to do about it. I will briefly discuss the following:

1. What the Regents mean by the terms they use to talk about "thinking."
2. The relationship between "thinking skills" and the subjects taught in school.
3. What it means to "integrate" instruction into reasoning and problem-solving, as well as in school subjects.
4. The concept of "understanding" as a combination of skills and knowledge that constitutes competence in a discipline.
5. How objectives of understanding can be measured.
6. The importance of student writing as a method for developing and measuring student understanding.
7. The long tradition of instruction in "thinking" in Western and especially, American civilization and its continued importance for the 20th and 21st centuries.
8. Why inner city students need to learn to think clearly and effectively at least as much as, if not more than, other students.
9. What the New York State Education Department is doing to ensure that this goal is achieved.

Let me begin by explaining some of the terms. The Regents have combined

"logical" and "creative" thinking into a single goal because they conceive of these as two sides of the thinking process, both of which are necessary for effective thinking. For instance, in science, development of a hypothesis requires "creative" thinking, and testing that hypothesis requires "logical" thinking. In mathematics, determining what algorithm to apply in a word problem requires "creative" thinking and applying the algorithm requires "logical" thinking. In history, the back-and-forth reference between facts and theory requires a combination of logic and creativity. This combination of "logical" and "creative" thinking, which constitutes reasoning skills, should be what students must learn to "apply to issues and problems." "Problem-solving skills," such as observing, describing, explaining, and measuring also help provide the context of research, investigation, and open dialogue in which reasoning skills can be applied to produce intelligent discussion.

What is the relationship between these goals and subjects taught in school? First, we need to clearly identify the particular logical, creative, and problem-solving skills which students should acquire; determine the relationship of those skills to each of the subjects taught in school; and integrate sequential instruction which will have these skills as part of instruction in all disciplines. These skills will have to be defined in some detail: not just "analysis" but "drawing inferences from premises, describing, grouping, and classifying." As we identify the skills and consider how they relate to various subjects, we will begin to see how they can be applied to issues and problems, both in school subjects and outside school. For instance, although the reasoning skill of

"defining terms" has obvious value in science for formulating an hypothesis and in English for defining terms such as "romantic" or "realistic," it is also important for discussions of the meaning and application of a value, such as "respect for human life." The skill of "taking all considerations into account" is critical to the design of scientific experiments or to demonstrating the causes of an historical event, but this skill also includes consideration of the motives of all people involved in an event about which one wishes to make a decision. Although each discipline or field of inquiry applies reasoning skills in ways peculiar to the discipline or field, each skill has some common features across the disciplines and fields.

Because of this, we must consider what it means to "integrate" instruction in reasoning and problem-solving into instruction in the various academic disciplines and other subjects taught in schools. Teaching of particular skills in each discipline must be integral to the logic of the particular discipline, and students should also learn to use the particular "way of thinking" represented by each discipline (for instance, by science, history, literary study, mathematics). At the same time, students who learn particular skills in one subject should learn how those skills can be applied in other disciplines and in situations outside school. This is why our project requires overall coordination of thinking instruction among all subjects, and a sensitivity to the structure of each discipline and field of study. But each discipline and field of study consists of more than skills. As John McPeck points out in his recent book Critical Thinking and Education, "There is no set of supervening skills that can replace basic knowledge of the field in question."

The term we use to describe the combination of skills and knowledge which constitute competence, of some degree, in a discipline or field is "understanding." Let me use an example from U. S. history to help explain what we mean by this term. "Understanding" U. S. history comprises both knowledge of information (such as the number of slaves in the Southern states in 1860, the relative quantitative importance of slave labor to the Southern economy, and the statements about slavery made by various Southerners) and skills (such as inference, formulating cause-effect relationships, and recognizing consistencies and contradictions) which the student integrates to understand, in this case, the importance of slavery as a cause of the Civil War. To some extent, skills, such as those listed above, can be learned independently of any subject, but only their application to specific information constitutes the "understanding" which we are discussing here. Just as there are combinations of knowledge and skills which constitute an understanding of biology or automotive repair, so there is a combination of knowledge and skills which constitute an understanding of civic values or an ability to produce works of art in a particular medium.

One implication of this concept of "understanding" is that objectives included in syllabi ought to integrate acquisition of skills with acquisition of knowledge and should be called objectives of "understanding." An example is: "The student will be able to explain why Animal Farm is or is not a satire."

This objective is measurable by an essay test and requires that the student apply logical and creative thinking to particular knowledge, that is, of the text Animal Farm and the various definitions of "satire." Such an

objective can, of course, be stated in more or less detail than the one I have used. One thing one notices when developing objectives of "understanding" is that writing (as distinct from multiple choices, short answers, or other forms of assessment) is often the best measure of understanding. Writing is also often the best method for developing understanding.

Writing allows students to think both creatively (in freewriting and planning a piece of writing) and logically (in editing and developing a final version of the piece), and to integrate and express the creative and logical thinking which characterizes all good thinking. Writing forces students to crystallize their thinking, to apply thinking skills to information so as to develop understanding, and to refine their abilities to use concepts. The Regents emphasize instruction in writing because writing is not only a "communication skill" or a set of such skills, but also an articulated system of "thinking skills" whose development is crucial to realizing the Regents goals.

There is nothing new about teaching people to think. Aristotle invented the syllogism, and logic was part of the Medieval trivium. "Socratic" has become a standard characterization for instruction which teaches people to think. Good teachers have always taught students real "understanding" of their subjects. At the same time, those subjects change and, in some ways, students change. While reasserting the importance of teaching for real understanding, the Regents have also asked us to find new ways to ensure that all students receive such teaching and gain such understanding. Students' ability to apply what they learn in school to matters outside school is a major goal of schooling, and this applies to logical and creative thinking,

problem solving, and critical thinking, as well as to other learning. Integrated with knowledge and concepts into the understanding that various disciplines afford, and used as part of a truly interdisciplinary approach to understanding the world, these abilities can provide powerful tools for making sense of an increasingly complicated world which provides all of us with larger and larger amounts of both raw information and differing ways of interpreting that information.

The survival of our democracy depends on our providing this kind of education to our young people because, as Jefferson knew, democracy depends on an educated citizenry who are not experts on all the subjects on which they must hold intelligent opinions, but who have sufficient understanding of the major academic disciplines and of other subjects taught in the schools so that they can make intelligent decisions on all the issues they will face in the future.

Too often, what is called "higher level thinking skills" are considered important only for students who score high on tests of scholastic "aptitude." For instance, the Philosophy for Children Program, which was developed for most children, is often used exclusively with a school's "gifted" students. In fact, every student needs to learn to think clearly and effectively.

The future of our urban schools include a growing minority student population. As graduates, or dropouts, these students will eventually be the majority of our urban citizenry: our voters, workers, artists, entrepreneurs, and scholars. The Regents Action Plan defines high standards for all students, including those in our urban schools. Learning to think well is an important goal of the Action Plan, and urban students will achieve

this goal along with the other Regents goals.

In the Education Department, we have begun a series of meetings of State Education Department managers of curricular programs in various subjects to discuss the interpretation and implementation of the Regents' position on teaching thinking. At these meetings, we will discuss existing and developing statewide curriculum documents, programs for teaching "thinking" that currently operate in schools throughout New York State and in other States, and various schools of thought about how best to teach thinking. These discussions will eventually lead to plans to integrate student objectives in "thinking" throughout statewide curricula in all subjects at all grade levels. Once such objectives are integrated in curricla throughout the grades and subjects, we will be able to determine, for each level of schooling, what kind of understanding a student will have of his school subjects and the extent to which he can apply this understanding to all subjects and to problems outside school. Once we can determine what progress students should make, then we can test students' understanding and reasoning abilities on statewide examinations. Many statewide exams already exist in New York State and the Regents Action Plan will implement a number of new ones. Understanding and reasoning ability are major targets for the assessment these exams provide of individual students and school programs.

Our State Education Department discussions so far have shown that statewide curricula are already calling for instruction in many reasoning skills and for their application to both theoretical and practical problems. Also, many programs used in schools, some locally developed and others (e.g., Philosophy for Children) adapted from national models, are accomplishing

much of what the Regents are calling for. Much of what needs to be done in this area comes under "articulation and coordination": ensuring that the job gets done in all subjects at all grade levels, in all schools and, most important in an equitable educational system, for all students; and ensuring that the understanding students achieve is both comprehensive and comprehensible.

Instruction in every subject can make a contribution to this goal. For instance, mathematics instruction may have to increasingly emphasize heuristics; social studies, the formal processes of evaluating arguments; English, the combination of logical and creative thought which comprises writing; occupational educational, practical problem solving; science, the experimental method. We will ensure that all these and other aspects of teaching thinking are brought together for every student.

Over the next several months, we will be meeting with educators and others interested in logical and creative thinking to further develop and crystallize ideas I have presented. We welcome your comments as we implement this important aspect of the Regents Action Plan.

IMPROVING THE ACADEMIC PERFORMANCE OF URBAN STUDENTS THROUGH THE INTEGRATION OF THINKING SKILLS

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The purpose of this paper is to present the possibilities that thinking skills may have for improving the academic performance of urban youth. We are witnessing a shift in the psychology underlying some of our thought about the teaching and learning processes in our public schools. During the 1970s, we saw behavioral psychology specify hierarchial skills development and direct instructional models for basic skills, an approach that informed and improved teaching and learning of basic skills. The results of the National Assessment of Educational Progress demonstrate that urban youth have significantly improved in basic skills development, but the lack of student achievement on so-called "higher order skills" has raised new questions. This fact, along with recent research findings in learning processes, created the opportunity for the cognitively oriented field of psychology to begin its renewed influence on the improvement of teaching and learning processes.

Because one of the more popular programs from cognitively oriented psychology is the development of thinking skills, much of the current national literature and developmental work in school improvement is concentrated on development of thinking skills programs. There are two positive aspects of this movement: the concentration on improving the cognitive functions of students as they apply to learning in each of the academic

areas; and the concentration on improving learning as well as improving teaching. If we believe, as many of the national reform reports state, that giving students the ability to learn throughout life is one of the more important goals of education, we need this thinking skills orientation to unlock some of the avenues to improved student achievement, and we need the leadership in the educational community to prevent thinking skills from becoming another educational fad.

Background

Population trend projections for future years indicate that urban schools will be asked to teach an increasing number of minority students, most of whom will be foreign born with a limited proficiency in English. Historically, school programs have served most of our students well, but today urban/minority students comprise the largest number of students, and they are not being served well. Approximately 50% of these students fail or dropout. Although alternative programs have had success, the need for improved regular school programs become greater as the call for increased standards becomes stronger. How can urban students achieve increased goals and spend time on alternative programs or remedial instruction? In light of these facts concerning student achievement in certain urban schools, we must begin to improve the actual technology of instruction being provided.

National reform reports, academic as well as employment related, also point to the need for improved instructional programs. In addition to academic skills, today's students need the ability to make decisions, to solve problems, and to relate well to co-workers. An emphasis on integrating thinking skills

into school programs offers some promise for establishing instructional equity in urban schools.

Thinking Skills

It is beyond the scope of this paper to review or discuss in detail all thinking skills programs; however, some key information supports my interpretations.

Thinking programs can be roughly categorized into three types: those that present thinking as a separate subject, those that correlate thinking skills with the regular instructional program, and those that address thinking as an integral part of each content area. The first type of program believes that thinking or cognitive process improvement is the major goal of education and so deserves the major time allocation. This type of program, like the De Bono School of Thinking (CoRT Program), usually comes with its own published materials and strategies. The second type of program, which correlates thinking skills with the regular instructional program, also needs separate instruction time but may or may not be directly applicable to the content areas. Examples of these programs include Instrumental Enrichment and Philosophy for Children. The third type of program, implemented by the content area teachers who provide direct instruction in the cognitive processes applied to their subjects, is usually developed by school districts and states as a hybrid of many different programs.

Within these three broad categories, Sandra Black has identified over ten distinct types of thinking skills programs with program goals that

include intelligence education, logic, reasoning, learning strategies, problem solving, decision making, creativity, basic cognitive skills, and variations of each. Any of these programs can be effectively used in schools under the correct circumstances even though each program presents its own theory, materials, and strategies. Together, however, they point to the need for a framework of thinking developed as a result of systematic research and development.

The thinking skills program and framework described herein has adopted the content integration approach as the major implementation process to pursue but recognizes these drawbacks: establishing another thinking program variation takes considerable time; the inservice training program will be immense; and as with similar past projects, they will most likely have limited long-term success.

Integrating Thinking Skills with Academic Skills

The program directions and framework being proposed provide a K-12 approach for integrating thinking skills with academic skills. This total program is for all students, with special emphasis on the under-achieving student in each phase. Because thinking is currently such a diverse subject, we must know and support the academic skills as our educational goals and use the current "thinking" approaches to assist in meeting those goals.

At the early childhood levels, we must begin addressing our improvement of student achievement. Current reform reports concentrate on high schools, but we should be trying to prevent those problems rather than remediate them. The development of a strong foundation in the basic skills should be the

focus of schooling in early years. The recent reports, such as the Wykert longitudinal study in Michigan, add support to the value of preschool education, especially for disadvantaged students.

Throughout the strong basic skills emphasis in the early years, teachers have ample opportunity to observe student performance. Students who are demonstrating difficulty in learning the basic skills can be identified by teachers who, using professional judgment, can accurately predict which students are likely to experience long-term learning difficulties. In fact, the Woodlawn Study in Chicago (currently being followed up in Baltimore) attempts to identify potential learning and school problems within family interaction patterns prior to preschool. Our own research in Maryland with an Early Identification and Intervention Program indicates that we can identify many students with learning difficulties with a high degree of accuracy at the kindergarten level. Instructional intervention should occur in the regular classroom, and pull-out instruction can be provided for more severe learning problems.

Follow-up instruction, in and out of the classroom, for these identified students is where integration of thinking skills with academic skills should be instituted first. When students are not learning basic skills in the regular program, they may have problems with their basic cognitive processes. Thinking skills programs with emphasis on memory strategies, organization, and sensory input may provide an alternative approach to assisting students learn academic or basic skills.

The middle school levels are the time for a development program of thinking skills that is again integrated into content areas. Here one

should note the work of Barbara Presseisen of Research for Better Schools in Philadelphia to find the focus of this developmental effort. Programs that emphasize learning strategies, such as study skills, metacognitive strategies, decision making, and creativity would be ideal for supporting goals of academic development and exploration of content in the middle school years.

The middle childhood years often signal a decline in achievement in academic skills for all students. Students who continue to exhibit learning difficulties will be assisted by either the developmental thinking skills program or mediated instruction with basic cognitive processes from the early childhood level, probably from resource teachers working in cooperation with content teachers.

At the secondary level, acquisition of content is one of the major goals and promises to remain so according to the recent reform reports. The organization of the secondary school, the training of teachers, and the requirements for certification indicate that content integration of thinking skills is the most efficient program type to be pursued. Again, the definition of the secondary thinking skills program would need to fit the needs of students and their academic goals. Programs that emphasize critical thinking, such as reasoning or problem solving to specific content, are needed. Assistance programs for students with learning difficulties could use as their model the St. Louis National Diffusion Network approved program (Supplemental Instruction), which conceives of resource teachers as learning specialists who co-teach with the content teachers. Their role would be to assist students in using the thinking skills needed to learn

the content of instruction in the regular classroom. Traditional pull-out remediation at the secondary level often places "at risk" students further behind their peers.

Implementation of this thinking skills program will require the development of some new technologies of instruction, as well as dusting off many instructional strategies currently known as effective. We need to continue to refine this framework for thinking skills, a task we are addressing in two different foci at the Maryland State Department of Education.

Maryland Approach

The Maryland State Department of Education is taking a two-pronged approach to the improvement of thinking skills and the program framework described above. Responding to many possible approaches and diverse nature of the improvement of thinking, the Department is issuing planning grants to interested local education agencies. The planning grants are influenced by state and local interests, philosophy, commercial program reviews, and resources; and they aim to encourage conscientious program development and adoption to reduce the "quick fix" mentality common in education. Planning grants will be followed by implementation grants for promising practices, which will then be shared among local education agencies. Statewide leadership conferences, regional planning meetings, inservice programs, and technical assistance will be provided by the Department. The Department will also be conducting leadership and model development activities for the state. Pilot projects for the systematic development of areas of promise, such as

the thinking and writing connection and a thinking skills framework, are being operated. Instructional protocols and curriculum development in the content areas are part of the overall thinking improvement program.

In summary, we are exploring a new frontier in the teaching and learning processes through the systematic research and development of a program currently called "Thinking." We feel this movement in its many forms holds promise for assisting all students' ability to learn the academic skills. We see particular promise for assisting students who have difficulty mastering the academic skills in our urban schools. For thinking skills programs, however, to fulfill their promise in the actual change and improvement of practice, we recognize that we may be facing a decade of concerted effort.

CATEGORICAL PROGRAMS FOR DISADVANTAGED YOUTH

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I want to begin by asking you to consider this question: What kind of education do our poor urban youth take with them when they leave school? Notice the difference between this question and another one we are more used to posing: What kind of programs are we offering poor urban youth? The difference is obvious, but usually overlooked. What I want to discuss is the educational program that the poor urban youth receives.

Categorical programs are improving the reading and math skills of participants. Beginning with the war on poverty and Title I in 1965, state and federal governments have been establishing and funding programs for students with one or another category of special need. We have state and federal compensatory education, bilingual education, special education, migrant education, and others. These programs have certain things in common:

- They are need driven
- They require identification procedures
- They define target population of eligibles
- They have supplanting provisions
- They require parent involvement
- They require planning and evaluation
- They are audited for fiscal and program compliance

In spite of these similarities, programs are typically administered separately

at the district level and the school site.

What has been achieved so far? Let us focus on the compensatory education programs aimed primarily at poor urban youth. In California our reports indicate that the programs are achieving their objectives at the elementary grade levels: participants are gaining about 4 to 5% in reading and math. This pattern has held for the last four years.

The largest national study conducted by Systems Development Corporation confirms this finding, but it also discovered that most of the gain was among students only moderately below grade level. Students well below grade level did not seem to profit from compensatory education after only one year. Although compensatory education has a record of success, it has not had an effect on the dismal statistics about urban youth: dropout rates, unemployment rates, and illiteracy rates.

We all want each individual to graduate from high school with the best education a youth is capable of attaining. However, that goal is not a reality for many urban youth because categorical programs focus almost exclusively on skill development. Skills are the human tools of labor. Although skills are necessary, education should also address knowledge and values. The instructional hallmarks of knowledge are the hallmarks of the scholar:

- Reading history, literature, and science
- Experimentation, speculation, and problem solving
- Thinking and writing
- Discussion and argument

Schools are also powerful transmitters of values. Students who study

the arts, history, and literature are provided with exposure to the broad range of human experiences and values. Students who do not, are exposed to a much narrower range of values, sometimes only those of the streets.

The curriculum of the categorical programs is based on low level reading and math skills. In short, the urban student putting time into categorical programs is getting what I call a remedial skills curriculum.

But while students are putting their time into remedial skills, what are they missing? In the case of elementary school students, some are missing science, history, or literature; and some are missing the more complex and useful skills of interpretation and inference in reading, as well as problem solving in math.

When the core curriculum is replaced by a remedial curriculum, students are being cheated of the program to which they are entitled. We are supplanting the base curriculum. Not in the legal-fiscal sense, but in a more important sense. What is going to happen to a student who missed history in elementary school to get extra remedial reading, then faces a high school graduation requirement of three years of social studies? If a student starts with less, and gets less on the way, how can we expect that student to finish on an equal basis?

Inadvertently, we have substituted skills for knowledge. Worse, we have substituted low order skills for higher order skills. A remedial curriculum cannot prepare students to meet reasonable high school graduation requirements. Unless we do something now, large numbers of urban youth will be unable to compete in high schools that are now requiring rigorous programs for all students.

What are we to do? For the vast majority of the students eligible for categorical services the answer is inescapable: we have to use the categoricals to help poor readers read history, literature, and science; and to help them write assignment in various subjects. Even when we have to pull a student out of a regular science class, he should bring his science book and receive help when reading it. We have to prepare these students for the same curriculum as regular students. We can no longer afford to deny these students access to the knowledge contained in a balanced curriculum.

Now let us examine some of the problems. The federal government contracted with Rand to study the aggregate effects of federal education programs. Their report, issued in 1981, concluded that there were serious interference problems between categoricals and the regular program, and also among the categoricals. They identified six types of interference:

1. Interruption of regular classroom instruction hurts students who are eligible most of all, but all students are also hurt.
2. Regular instruction is simply replaced by categorical instruction: students lose as much as they gain.
3. With clashing teaching methods and incompatible materials many children are simply confused.
4. Administrative burdens on teachers and principals reduce instructional time.
5. Staff conflicts caused by program separatism undermines attempts to integrate instruction.

6. Students are segregated for large portions of the day, and this leads to segregation and tracking within schools.

Many of these interference problems can be traced to the undue influence of audit and compliance issues on program design. Instead of starting with what the student needs, an integrated, balanced program free of disruption, we have often started with what the auditors need. This has encouraged separation rather than coordination.

Another cause of the problem is simple bureaucratic inertia: "I've got my turf and you've got yours. You stay out of my hair and I'll stay out of yours." The problem is that they share the same turf: Johnny's education.

An additional problem is that the base curriculum has been out-of-focus since the late sixties. Reports throughout the country indicate this seems to be changing. In California, we have, among other things, instituted graduation requirements, developed model curriculum standards, strengthened testing to assess higher order skills and subject area content, and raised standards for textbook selection. My sense is that this is fairly typical in other states as well. Unless we recognize that "comp ed" students have a right to this enriched curriculum and that we have responsibility to make it accessible to them, they will once again be left with nothing.

Can these problems be solved? Should we dismantle categoricals? Yes, they can and no, we should not dismantle categoricals. We should return to the original premise of the categoricals: extra resources to provide extra help for students who need it.

Much can be accomplished simply by tying the management of categoricals

more closely into the mainline administration from superintendent to principal to teacher. Separate management of each categorical is a convenience for the auditors at the expense of students. There should be one reading program which includes categorical resources for eligible students. Multifunded positions and cost pooling are good management methods for this purpose.

Whoever, is planning the reading program at district, school, and teacher levels should plan instruction for the full range of student needs. If we want literature to be a central element of reading, it should be central for students at every level of ability. If there are extra funds for special needs (compensatory education for slow readers), let those who are planning reading have those monies and simply allocate them to those parts of the program that deal with the target needs. Thus, if an auditor looked at the entire reading program and saw that $450 per student more was being spent for slow readers, the auditor should be satisfied that the compensatory education law is being obeyed. Tracing dollars to students or identifying students, is unnecessary because a school would not give a remedial service to a student who did not need it. Therefore, the destructive separation of accountability between the regular reading program and the compensatory education reading program would be avoided.

In California, the School Based Coordinated Program Act allows schools to mingle categorical services under certain conditions and within limits. Basically, if a school sets up a school planning committee modeled along the lines of the school improvement program, that committee can plan a coordinated program of categorical services. It allows for trade-offs

between regular and special education staff, between schoolwide projects for compensatory education in schools and high densities of eligible students, and other combinations. Such school based efforts help, especially in schools heavily funded by categoricals.

A similar idea at the student level is the Student Study Team (SST). This is a variation of an old idea, eliminated by the growth of categoricals in the 1970s. Basically, all the adults who work with or might work with a student who is behind, could meet to decide on some strategies to help the student. The initial focus is on the regular classroom and help for the regular teacher. The SST has access to all resources in the school, including categoricals. Ideally, the SST should have limited authority to route categorical services to individual students without triggering various formal identification procedures and safeguards. As it is now, these categorical procedures are required. If all categoricals require assessment and diagnosis of need, a school should establish one assessment process for all students and have identification for any service or categorical. Why separate formalities? After all, it must come down to a single education for a single student.

Ultimately, if we want the mainline authority from superintendent to teacher to be more responsible for the total program of every student, no matter what their need, then we have to give the regular classroom teacher more control over categorical services delivered to that teacher's students. This is the rock bottom issue in the management of any instructional intervention. As long as the teacher cannot control the scheduling and the curriculum, we cannot expect the teacher to feel responsible for the student.

The adage "One person's efficiency is another person's problem," is never so true as when a bureau of a federal or state agency optimizes its own efficiency, drawing inward to its own procedures and narrowing sense of responsibility. Yet, we expect the classroom teacher and the multiple eligible student to cope with a panoply of programs. What kind of unified policy apparatus exists at the federal level that would make compensatory education and special education policymakers get together to face the kind of interference issues they are leaving to teachers and students? I know from my experience as the administrator of both of these programs that it is possible to make substantial changes. I also know we have not been able to get special education and compensatory education on the same wave length in Washington. But we are hopeful.

Let us look again at the similarities among the categoricals. This time let us think of them not as parallels in policy and law, but as parallels in practice. When you get to the principal, teacher, student level, parallel practices usually become redundant, repetitious procedures. As I repeat these parallels, imagine a single teacher or a single student going through these steps separately for each categorical:

- Establish needs
- Plan services
- Define eligibility
- Assess the student
- Maintain separate audit trail for services
- Evaluate
- Prepare for audits

It is about time we recognized that these basic steps also have parallels in the regular program, and that if we unify federal and state policies and unify procedures, then implementation in schools can be more efficient and more effective.

Does this mean block grants? Of course not, because we still need safeguards. Let us not forget that the categoricals were created to solve some difficult problems. But the safeguards we need must provide for more regular classroom teacher control and must reflect similarities among the categoricals; and must important of all, the safeguards must assist every student in obtaining a core curriculum that has a full balance of subjects, as well as a balance of knowledge, skills, and values.

A NATIONAL VIEW OF HIGH SCHOOL GRADUATION REQUIREMENTS

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Since 1980, more than half of the states have raised state high school graduation requirements. For the most part, the number of units of mathematics and science required of all high school students has been increased. But many of these states have also upped the total number of academic or basic skills units required for graduation while decreasing electives students are permitted to earn.

While A Nation at Risk calls for students to be prepared in new technological basics, at the beginning of 1984, only Rhode Island has added computer literacy as a state high school graduation requirement, and then only for the college-bound. Since January, 1984, Louisiana, New Hampshire, Oklahoma, South Dakota, Texas, and Utah have added a reference to computer science in their elective requirements. In addition, several other states either allow or encourage computer education in their schools. In Delaware, computer literacy must be considered an instruction objective, rather than a graduation requirement, but all high schools are encouraged to offer computer literacy electives. In Georgia, students must take either fine arts, vocational education, or computer technology. Every school district in Indiana must have a plan for computer literacy by August, 1984. The Nevada Department of Education encourages school districts to offer coursework in computers and calculators; and in Virginia, each student must receive educational experiences outlined in a state publication on computer literacy.

One of the most asked questions by the media is, "Which state has the highest high school graduation standards?" Based on the information that is available, in the fall, 1984, Florida and Utah will both require 24 units for regular students. In the summer, 1984, Missouri also added a 24-unit requirement for college-bound students. The District of Columbia's schools require 23 units, and 26 other states require 20 or more units. In 13 additional states, graduation requirements are set predominantly by school districts. See following Clearinghouse Notes.

MINIMUM HIGH SCHOOL GRADUATION COURSE REQUIREMENTS IN THE STATES

As of November 1984

STATE	(Numbers Refer to Years of Instruction) English/ Lang. Arts	Social Studies	Mathematics	Science	PE/Health	Electives	Other	Total	Enacted by:	Date of Enactment	Effective for Grad.Class of:	Notes
Alabama	4	3	2	1	3 1/2	6 1/2		20	SBE*	5/80	1985	A task force is currently studying graduation requirements, including the possibility of an "advanced" diploma.
Alaska	4	3	2	2	1	9		21	SBE	4/84	1985	
Arizona	4	2	2	2		9 1/2	1/2 essentials of free enterprise system	20	SBE	2/83	1987	
Arkansas	4	3	5		1	6 1/2	1/2 fine arts	20	SBE	2/84	1988	Social studies options: 3 units or 2 units social studies and 1 practical arts. Science and mathematics: may be 3 science and 2 math, or 2 science & 3 math.
California	3	3	2	2	2		1 fine arts or foreign language	13	Leg.**	1983	1987	The state board has published "Model Graduation Requirements" to be used by local districts as a guide. These include specifics in core subjects plus computer studies and foreign language.
Colorado												Local boards determine requirements. State has constitutional prohibition against state requirements.
Connecticut	4	3	3	2	1	6	1 arts or vocational education	20	Leg.	Sprg. 1984	1988	
Delaware	4	3	2	2	1 1/2	6 1/2		19	SBE	7/83	1987	
Dist. of Columbia Comprehensive	4	2	2	2	1 1/2	8	1 foreign lang.	20 1/2	Bd. of Ed.	1980	1985	Electives must include life skills seminar, or a test can be taken and passed in lieu of the seminar.
Career/Vocational	4	2	2	2	1 1/2	1 1/2	1 foreign lang. 9 specialized preparation	23				
Florida	4	3	3	3	1	9	1/2 practical or exploratory vocational education 1/2 performing fine arts	24	Leg.	1983	1987	22 units required for graduates through 1985-86 school year.
Georgia	4	3	2	2	1	8	1 fine arts, vocational education or computer technology	21	SBE	11/83	1988	
Hawaii	4	4	2	2	1 1/2	6	1/2 guidance	20	SBE	1978	1983	
Idaho	4	2	2	2	1 1/2	6	1/2 reading 1/2 speech 1/2 consumer education 1 humanities	20	SBE	Sprg. 1984	1988	Humanities will increase to two units after 1988 with a total requirement of 21 units.
Illinois	3	2	2	1	4 1/2	2 1/4	1/4 consumer education 1 art, foreign language, music or vocational education	16	Leg.	5/83	1988	One year of mathematics may be computer technology. One year of soc. studies must be U.S. History or half U.S. History and half American Government.

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STATE	(Numbers Refer to Years of Instruction) English/ Lang. Arts	Social Studies	Mathematics	Science	PE/Health	Electives	Other	Total	Enacted by:	Date of Enactment	Effective for Grad. Class of:	Notes
Indiana	4	2	2	2	1 1/2	8		19 1/2	SBE	9/83	1989	The state board regulations were approved/ signed by the governor in September 1983.
Iowa		1 1/2			1				Leg.			Legislative requirements in effect for many years. Local districts determine remaining requirements.
Kansas	4	3	2	2	1	8		20	SBE	1983	1988	
Kentucky	4	2	3	2	1	7	1 additional mathematics, science, social studies or vocational education	20	SBE	1982	1987	Additional core subject credit is a legislative requirement passed in 1984 (and approved by SBE) to be effective for graduates in 1985. (Graduates in 1985 and 1986 need 18 units to graduate.)
Louisiana	4	3	3	3	2	7 1/2	1/2 computer literacy	23	SBE	4/84	1990	Graduates in 1988 need 22 units.
Maine	4	1						16	Com. of Ed.			American History is required. Local boards determine remaining requirements.
Maryland	4	3	2	2	1	8		20	SBE	1974		SBE may change in late 1984.
Massachusetts		1			4				Leg.			Legislative requirements in effect for many years. American History required. Local boards determine additional requirements.
Michigan		1/2							Leg.			Legislative requirements in effect for many years. Local boards determine additional requirements. The state board, in January 1984, published graduation requirement guidelines which local districts are urged to incorporate.
Minnesota	4	3	1	1	1 1/2	9 1/2		20	SBE	1982	1982	Requirements took effect immediately for all graduates.
Mississippi	3	2 1/2	1	1		8 1/2		16	SBE	1970		In July 1984, the SBE approved new requirements which will be field-tested for two years.
Missouri Standard Diploma	3	2	2	2	1	10	1 practical arts 1 fine arts	22	SBE	3/84	1988	
College Prep. Studies Cert.	4	3	3	3	1	8	1 practical arts 1 fine arts	24	SBE	3/84	See Notes	Available to 1985 qualifying graduates. For college preparation, specific core subjects must be taken, and 3 electives must be in advanced courses.
Montana	4	1 1/2 or 2	2	1	1	10 1/2 or 10		20	SBE	Sprg. 1984	1986	Core requirements in effect for several years. State board recently raised the total: 1985 graduates need 18 units; 1986 graduates need 20. Social studies requirement has 2 alternatives.

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STATE	(Numbers Refer to Years of Instruction) English/ Lang. Arts	Social Studies	Mathematics	Science	PE/Health	Electives	Other	Total	Enacted by:	Date of Enactment	Effective for Grad. Class of:	Notes
Nebraska									Leg.	4/84	1991	For graduation, 200 credit hours required, with at least 80% in core curriculum courses. The state board is conducting hearings to define core courses.
Nevada	3	2	2	1	2 1/2	9 1/2		20	SBE	7/83	1986	
New Hampshire	4	2 1/2	2	2	1 1/4	4	1/2 arts; 1/2 computer science; 3 from 2 of the following: arts, foreign lang., practical arts, voc. ed.	19 3/4	SBE	7/84	1989	
New Jersey	4	2	2	1	4	4	1 fine, practical or performing arts; 1/2 career exploration	18 1/2	SBE			Requirements have been in effect for a number of years.
New Mexico	4	2	2	2	1	9	1 practical arts or fine arts	21	SBE	4/83	1987	In 6/84, the state board required that all students must achieve computer literacy prior to graduation.
New York												
Local diploma	4	3	1	1	1/2	3 1/2	3-yr. sequence in 1 of: foreign lang., industrial arts, math, music, science art, occ. ed., home economics	16	Bd. of Reg.			1/2 is health only; 2 noncredit units of PE beyond the total. Requirements in effect for a number of years. Changes in the requirements will be made later in 1984.
Regents' diploma	4	3	1	1	1/2	8 1/2		18				
North Carolina	4	2	2	2	1	9		20	SBE	1/83	1987	
North Dakota	4	3	2	2	1	5		17	State Supt.	8/83	1984	
Ohio	3	2	2	1	1	9		18	SBE	9/83	1988	
Oklahoma												
High school grad. req.	4	2	2	2		10		20	SBE	1982	1987	
College prep.	4	2	3	2			4 from: foreign lang., computer science, economics, english, geography, government, math, history, sociology, science, speech, psychology	15	SBE and Reg. of Higher Ed.	1984	1988	Slight variations between 2-/4-year and junior colleges. If foreign lang. elected, 2 years in same language.
Oregon	3	3 1/2	2	2	2	8	1/2 career dev., 1 applied arts, fine arts or foreign lang.	22	SBE	4/84	1988	
Pennsylvania	4	3	3	3	1		2 arts and humanities	21	SBE	12/83	1989	Local boards determine the remaining 5 units.
Rhode Island												
Career bound	4	1	1	1		9		16	Bd. of Reg. for El/Sec Ed.	1962		The Board of Regents is considering changes for both "career-bound" and "college-bound" tracks.
College bound	4	2	3	2		4	2 foreign lang. 1/2 arts; 1/2 computer literacy	18		6/83	1988	

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STATE	(Numbers Refer to Years of Instruction) English/ Lang. Arts	Social Studies	Mathe-matics	Science	PE/Health	Electives	Other	Total	Enacted by:	Date of Enactment	Effective for Grad. Class of:	Notes
South Carolina	4	3	3	2	1	7		20	SBE and passed by leg.	7/84	1987	
South Dakota	4	3	2	2		8	1/2 computer studies 1/2 fine arts	20	SBE	2/84	1989	Increased total number of requirements being phased in: 16 through 1986; 18 in 1987; and 19 in 1988.
Tennessee	4	1 1/2	2	2	1 1/2	9		20	SBE	8/83	1987	
Texas High school grad. requirements	4	2 1/2	3	2	2	7	1/2 economics/ free enter-prise	21	SBE	9/84	1988	1 1/2 units of physical education and 1/2 unit of health education for both programs.
Requirements in addition to high school graduation requirements	4	2 1/2	3	3	2	3	1/2 economics/ free enter-prise 2 foreign lang. 1 computer science 1 fine arts	22	SBE	9/84	1988	
Utah	3	3	2	2	2	9	1 1/2 arts 1 vocational education 1/2 computer science	24	SBE	1/84	1988	The state board makes specific course recommendations for college entry, vocational, etc.
Vermont	4	3	3	3	1 1/2		1 arts	15 1/2	SBE & approved by leg.	8/84	1989	
Virginia Standard diploma	4	3	2	2	2	6	1 additional science or mathematics	20	SBE	7/83	1988	
Advanced studies diploma	4	3	3	3	2	4	3 foreign language	22	SBE	7/83	Available for 1985 grad.	
Washington	3	2 1/2	2	2	2	5 1/2	1 occupational education	18	SBE & put into statute	1983	1989	The state board added the PE requirement in May 1984.
West Virginia	4	3	2	1	2	7	1 applied arts, fine or performing arts or second lang.	20	SBE	1981	1985	Revisions in the requirements will be made by January 1985.
Wisconsin	4	3	2	2	2		1/2 computer science	13 1/2	Leg.	Sprg. 1984	1989	Electives are the option of local school districts. The state recommends that districts require a total of 22 units.
Wyoming		1						18				Requirements in effect a number of years. Local boards determine remaining requirements to reach the minimum of 18 total units.

*SBE indicates State Board of Education
**Leg. indicates Legislature

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